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ABSTRACT

This report describes a 6-month study of Kenya's Harambee Institutes of Technology. Part I traces the history of western education in East Africa, explores the growth of technical education from the 1930's to the present, and explains the Harambee self-help movement, which emerged from the determination of the Luo and the Kikuyu people to remove themselves as far as possible from the influence of European missionaries. Part II focuses on the Harambee Institutes. First, two pre-institute developments are examined: the Kintzer-Goodman Kenya Student Project (1962-64) and Medsker's recommendations concerning the establishment of a junior college in Kenya in 1962. This section also discusses the beginnings of the Harambee Institute; provides reports on individual schools, including college histories, interview results, summaries of materials, and observations made during visits; and offers comparisons with other short-cycle educational systems. Finally, part III discusses the future of the Harambee Institute Movement, including suggestions for realizing the system's possibilities and potentialities. (LAL)

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THE HARAMBEE INSTITUTES OF SCIENCE AND TECHNOLOGY IN THE REPUBLIC OF KENYA: REPORT OF A STUDY, 1986-1987

Frederick C. Kintzer
Professor Emeritus, UCLA
Fulbright Senior Research Scholar

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Preface and Abbreviations

Preface

This is a report of a six-month study of the Kenya Harambee Institutes of Technology. The investigation was made possible through a research award from the Council for International Exchange of Scholars under the 1985-1986 Africa Research Program. Funds authorized by the United States Congress under the Fulbright-Hays Act are administered by the United States Information Agency. Time period of the study was from August 16, 1986 to February 16, 1987, and the final report was completed in May 1987. Research clearance permission was authorized by the President's Office, Republic of Kenya, for the time period stipulated, and formal affiliation with Kenyatta University was also granted.

Materials for the study were obtained from a variety of sources: in the United States primarily from the research library and African Center of UCLA, and in Kenya from the Kenya National Archives, MacMillan Library, British High Commission, US/AID Mission to Kenya, American Cultural Center Library, University of Nairobi Institute for Development Studies and Central Library, and Kenyatta University Bureau of Educational Research and Central Library. Valuable information was obtained from materials, i.e., brochures, reports, announcements, from all of the technical institutes, and from informal conversations with members of governing boards, administrators, faculty, staff and students.

The author wishes to acknowledge the particular help of several individuals; Mr. Churu (senior education officer for the technical institute system, Ministry of Education, Science, and Technology), Professor G. S. Eshiwani (Director of Educational Research, Kenyatta University), Mr. E. M. Njiru (Assistant Registrar, Kenyatta University), Mr. W. P. Lukasavich (Cultural Attaché, U. S. Embassy), and Dr. K. R. Koech (Principal of the Rift Valley Institute of Science and Technology) who arranged use of the institute office in Nairobi.

Representatives of two national governments were helpful in furnishing materials on the Harambee Institutes: Kent Smith, Kenya Coordinator of the Canadian International Development Agency (CIDA), and Jan Jensen, Counsellor (Development) for the Danish International Development Agency (DANIDA).

The author expresses a special word of appreciation to his wife, Ruth E. Kintzer, who edited the final report. Without her constant support and devoted effort, the project would not have been feasible or possible.

The views, interpretations, and suggestions found in this document are entirely those of the author, and should not be attributed to the United States Government or any agency so-connected.

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Fulbright-Hays Senior Research
Scholar

Abbreviations

Institutions

HITs	Harambee Institute of Technology
CIT	Coast Institute of Technology
GIT	Gusii Institute of Science and Technology
KCRT	Kaimosi (Friends) College of Research and Technology
KIST	Kiambu Institute of Technology
KIT	Kimathi Institute of Technology
KTI	Kirinyaga Technical Institute
MECT	Meru College of Technology
MIT	Moi Institute of Technology
MCT	Murang'a College of Technology
RIAT	Ramogi Institute of Advanced Technology
RVIST	Rift Valley Institute of Science and Technology
RWIKA	RWIKA (Embu) Technical Institute
SIST	Sang'alo Institute of Science and Technology
UKAI	Ukamba Agricultural Institute
WECO	Western College of Arts and Applied Sciences
CCIT	Coordinating Commission on Institute of Technology
KITHA	Kenya Institutes of Technology Heads Association

Other Institutions

A & T	Agricultural and Technical
ITC	Industrial Training Centers
KIE	Kenya Institute of Education
KIRDI	Kenya Industrial Research and Development Institute
KITI	Kenya Industrial Training Institute
KTTC	Kenya Technical Teachers College
MITC	Mombasa Industrial Training Center
SUNY	State University of New York
TKP	The Kenya Polytechnic
TMP	The Mombasa Polytechnic

Agencies - National and International

CGLI	City and Guilds of the London Institute
CIDA	Canadian International Development Agency
DANIDA	Danish International Development Agency
IHO	International Health Organization
ILO	International Labor Organization
NORAD	Norwegian Agency for International Development
UNESCO	United Nations Educational, Scientific and Cultural Organization
USAID	United States Agency for International Development

Ministries or Divisions of Government

MOCSS	Ministry of Culture and Social Services
MOE	Ministry of Education, Science, and Technology
MOL	Ministry of Labor
NYS	National Youth Service

Examination and Certificate/Diploma Terminology

CPA(I)	Certificate of Public Accounting (Level I)
CPE	Certificate of Primary Education, or
PLE	Primary School Leaving Examination

EAACE	East African Advanced Certificate of Education
EACE	East African Certificate of Education
EACET	East African Certificate of Education Technology
EAHSC	East African Higher School Certificate

(East African certificate system replaced by general certificate system in the early 1950s).

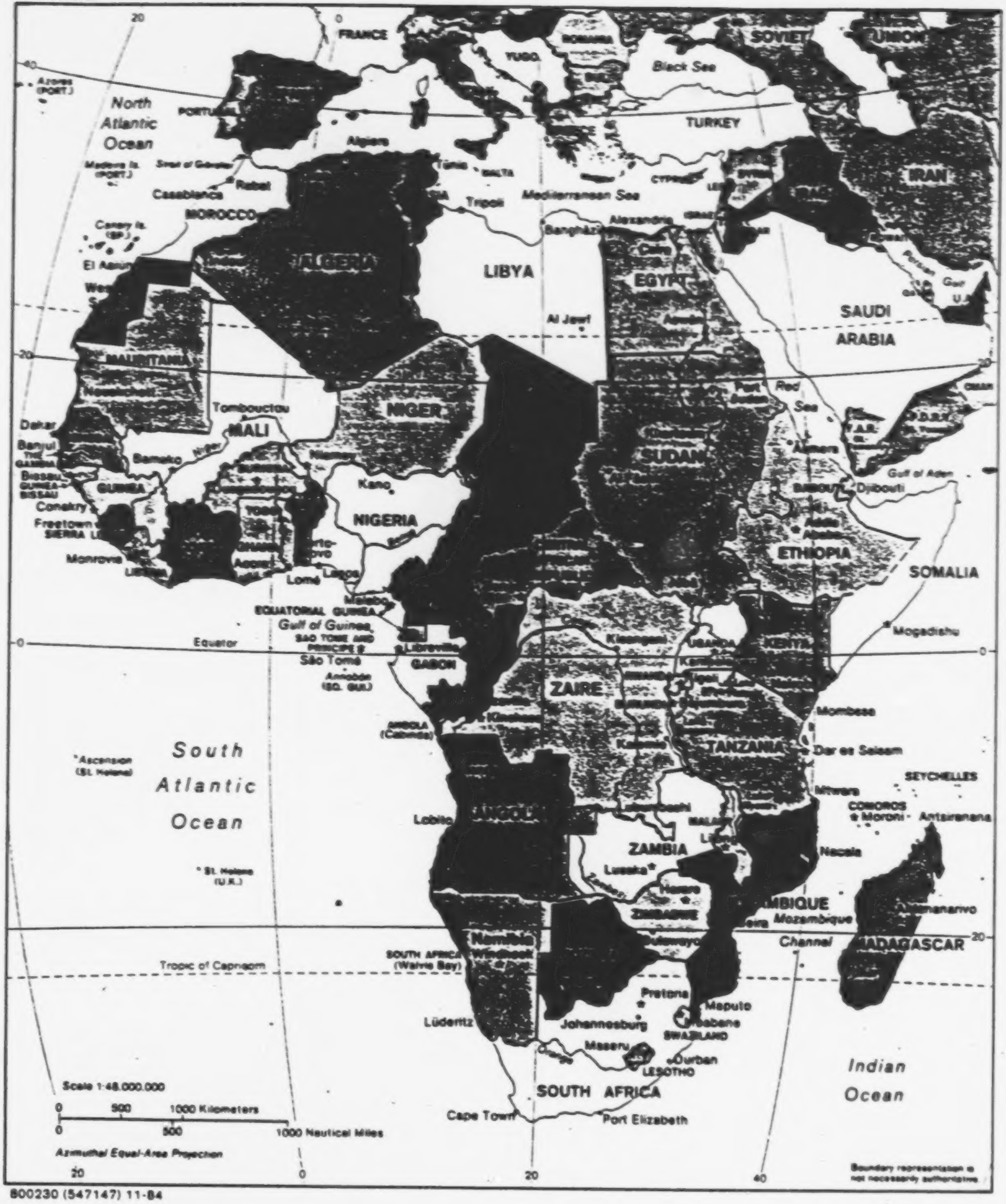
GCE(A)	General Certificate of Education (Advanced)
GCE(O)	General Certificate of Education (Ordinary)

HND	Higher National Diploma
KCE	Kenya Certificate of Education
KJSE	Kenya Junior Secondary Examination
KPC/E	Kenya Polytechnic Certificate/Examination

Other Acronyms

GNP	Gross National Product
KCPU	Kenya Carpentry Production Unit
KNEC	Kenya National Examination Council
R & D	Research and Development

Africa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Black Sea
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Casablanca
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SEYCHELLES
COMOROS
Moroni
Antsiranana
ANGOLA (Cabinda)
ANGOLA
Lobito
ZAMBIA
Lusaka
MALAWI
Nacala
MOZAMBIQUE
Mozambique Channel
MADAGASCAR
Antananarivo
Harare
ZIMBABWE
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SOUTH AFRICA (Walvis Bay)
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Pretoria
Johannesburg
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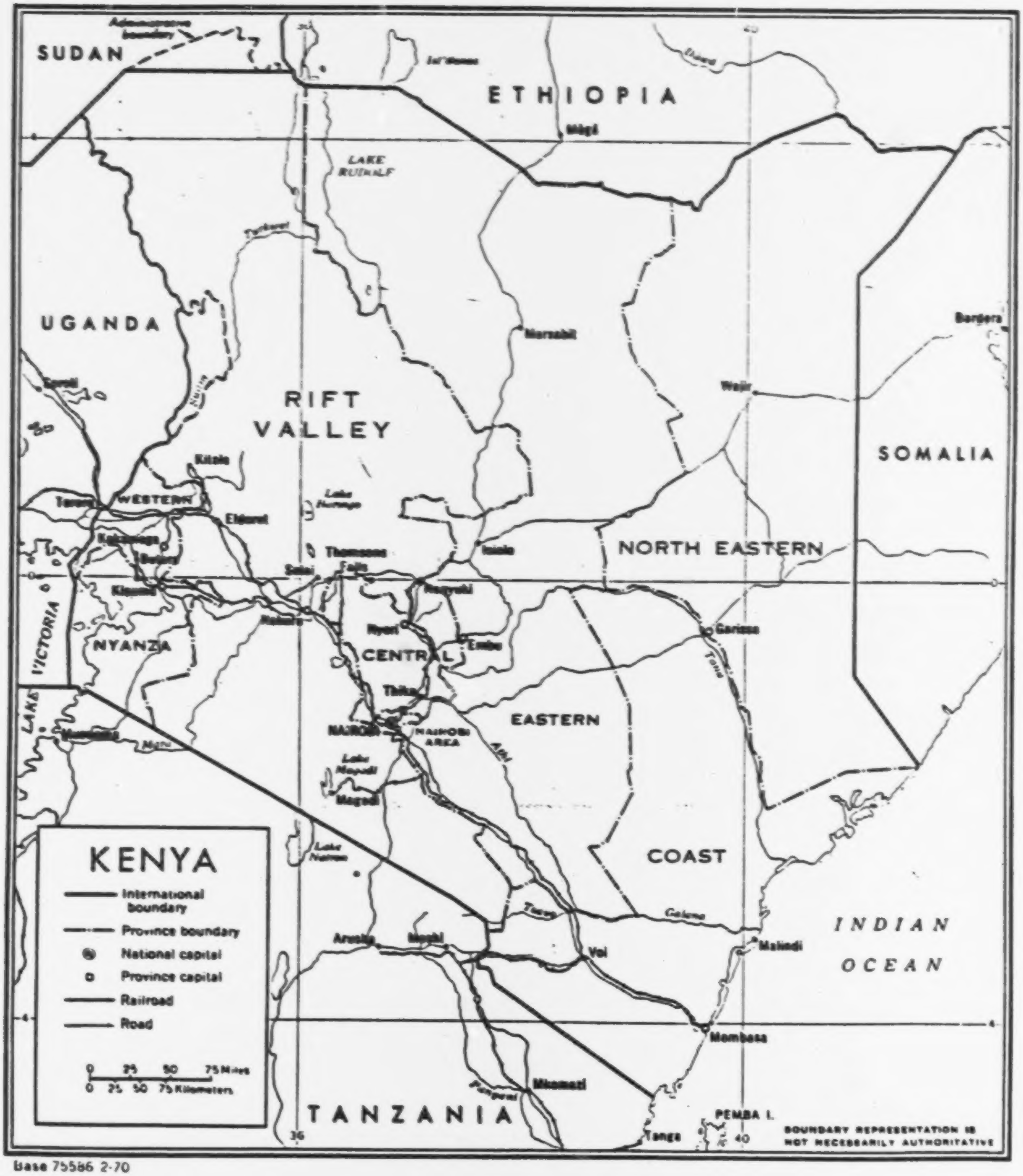
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Turkwel
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RIFT VALLEY
Marsabit
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SOMALIA
Soroti
Nzoia
Kitale
Tororo
WESTERN
Eldoret
Kakamega
Butere
Kisumu
Lake Hannington
Thomsons Falls
Isiolo
NORTH EASTERN
Nanyuki
Nyeri
Embu
Garissa
Tana
Nakuru
NYANZA
LAKE VICTORIA
CENTRAL
Thika
NAIROBI
NAIROBI AREA
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Musoma
Mara
Lake Magadi
Magadi
Lake Natron
COAST
Tsavo
Galana
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Arusha
Moshi
Voi
Malindi
Mombasa
Mkomazi
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TANZANIA
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PART I

INTRODUCTION AND BACKGROUND

SECTION 1

EARLY EDUCATIONAL DEVELOPMENTS

A review of 2 interrelated developments should provide a preliminary understanding of Kenya's Harambee Institutes of Technology: (1) technical education, and (2) the harambee self-help movement. First, a summary account of the history of education in East Africa is appropriate.

The area of higher education or post-Form IV had remained relatively neglected until the late 1930s. A brief statement of the beginning of organized schooling by non-Africans provides links to the introduction of advanced education, and the expansion of educational opportunities for all races.

Prior to the establishment of the British East African protectorate - later Kenya - in 1895, African people had developed techniques for educating youth. With the expansion of the coastal strip around Mombasa where the British Government headquartered until 1907, and the prior completion of the Uganda Railway in 1901 linking Kenya's 3 emerging communities, Mombasa, Nairobi, and Kisumu, mission education spread rapidly. By the First World War, large numbers of Africans were enrolled in mission and government schools primarily in and around those 3 towns. A distribution chart of missionary societies in 1917 shows some 410 village schools operated by a total of 15 religious societies. Over 18,000 pupils were registered. The Roman Catholic Church led in both school and pupil numbers (Furley and Watson, 1978, p. 91).

Government schools were opened for Europeans and Asians offering meagre work in limited facilities. These were more advanced than mission schools for Africans. During the first decade of the century, multi-racial schools were started experimentally, some with government support.

The expansion of the railway system throughout East Africa forced attention to school planning. The railway school started in Kenya in 1907, was an example. This helped to introduce a practical job emphasis to government-sponsored education. In contrast, a major contribution of the early mission schools was in teacher training to encourage the spread of basic education into rural areas.

The Department of Education was established one year later (1908) as recommended by the Frazer Commission. European settlers in East Africa wanted British-type schooling for their children, and favored vocational/trade training for Africans. The new Department of Education used the Tuskegee Institute model in planning training programs. The Jeanes Training School dating from 1925 was an example of an attempt to produce marginally-trained teachers to improve the standard of living among their own people. The effort, however, was not well received, and the Government, as a result of the Phelps-Stokes Commission Report (1924), began to support missionary schools that agreed to adapt training courses to African cultures. By 1934, local native councils had also been established with government support throughout Kenya, from Narok in the southwest to Kakamega and Kericho in the northwest.

As the mediocre success of the Jeanes School suggests, African education for both boys and girls developed much more slowly than for Europeans and Asians. African parents were opposed to schooling sponsored by missions with or without government support. They were suspicious of missionaries and disliked, especially for their daughters, the "higher status" education was destined to bring. Girls faced brutal beatings, ostracization from families, and the possibility of being sold in marriage. Growth of coeducation and the enthusiasm of the new generation of girls gradually changed this deep-seated attitude. The Jeanes School persisted as the only government school for African women teachers, and was joined in 1930 by the Native Hospital in Mombasa.

During the inter-war period, teacher training for both women and men, except for Africans, was neglected. Most non-African teachers received training overseas, but in the 1930s, the Government began to train European primary teachers by correspondence. Agriculture and veterinary medicine were also introduced in African elementary and primary schools sponsored both by the Government and missions. As mentioned earlier, schools were opened for various types of railway workers in conjunction with Kenya and Uganda Railways, and marine workers in the Kisumu area.

Racial segregation in education continued, but African demands for the status academic education and for more independent schools were intensifying.

Improvements in schooling especially for Africans as well as Europeans, who were beginning to pour into the British Protectorate, were entirely postponed with the outtbreak of hostilities in Europe.

A renewal of the importance of independent schools began with Peter Mbiyu Koinange's return from Teachers' College, Columbia University in 1938, when he completed a master's degree in education. He attempted to "uplift the Kikuyu" by opening new buildings in full knowledge of an apprehensive government, at a training college in Githunguii. The appointment of Jomo Kenyatta upon his return from England in 1946 served to clarify institutional purposes, to promote European knowledge and techniques, and their African culture (Furley and Watson, 1978, p. 251).

The school was abandoned in 1952 during the Mau Mau insurrection. The uprising decreased educational opportunities throughout the colony in both government and independent schools. Most of the latter were closed by 1953, since the Kikuyu schools were suspect as centers for subversive activities.

After World War II, and particularly following the Mau Mau and Uhuru, independent schools spread rapidly for the rural African masses. Rural trades rather than urban technician skills were favored. Urban youth were, in fact, neglected until about 1955. The opening in Nairobi of the Royal Technical College actually in 1956, and Kenya Polytechnic 5 years later began technical education for all races. Thus began the upsurge of activities, politically, economically, and educationally, toward independence.

The rapid development of education at all levels since Uhuru beginning with government and harambee-sponsored primary schools was one of the most complete among third-world nations. More than 85% of the children now begin primary school and a third of the primary completers continue for some kind of secondary school education.

Growth of technical education from the meagre beginnings in the 1930s will be more fully discussed in the next section.

PART I - SECTION 2

TECHNICAL EDUCATION

Technical education in East Africa was neglected until the appointment of the de la Warr Commission in 1937. Makerere College created in 1932 as a trade school in Uganda was recommended by that body for university status emphasizing technical studies. In a reversal of policy, the Asquith Commission appointed by the colonial office in 1943, shifted major attention from technical/vocational to academic education (Sheffield, 1973, p. 31).

During the 1950s, technical and craft schools were favored by secondary school students. Particular interest was shown among Africans for technical training. To be a skilled tradesman was highly prized. Shortages in engineering craftsmen and technicians added to the popularity of the training schools (Bennell, 1984, p. 34-35).

Further significant changes for Kenya resulted from the Lockwood Commission which in 1958 recommended that the Royal Technical College in Nairobi become an East African university college. The name was shortened to "Royal College," and together with Makerere College and a university college in Dar-es-Salaam in Tanganyika, was affiliated with the University of East Africa. This amalgamation served to improve the status of technical education and gave recognition particularly to advanced levels of study.

The rapid expansion of the national economy following Uhuru in 1963 heightened the need to review vocational/technical training. A study was undertaken by an ILO expert, and the

Kenyan government accepted its 2 major recommendations: (1) to change the 2-year basic trade course into a 4-year secondary school program, and (2) to establish industrial training centers to provide theoretical training. The first center was opened in 1966 in Nairobi, providing group experiences in motor-engineering trades, and later other engineering trades as recommended by committees from the appropriate industries. The apprentices took sandwich courses at Kenya Polytechnic after a 3-month introductory course at the center. Links were thus formalized with the City and Guilds of the London Institute (Ibid. pp. 36-38).

The training center program also established in Kisumu, Nyanza Province (1972) and Mombasa (1976) was augmented by a training levy grant system started in 1970 through the Industrial Training Amendment Act 10, requiring small industrial companies to contribute to the government program, and thus encouraging industry to participate in the training. This, however, met with only modest success. The failure of the levy encouraged official recognition of the possibilities of technical training for rural areas on a self-help basis.

The Ominde Commission chaired by Professor S. H. Ominde was appointed in the first week of independence. This was the first national investigation of the entire educational system. The inquiry necessarily established a philosophy of education on which the government would base national policy. Commitments such as social equality and removal of distinction among races, tribes, and religions were basic doctrines developed to substantiate recommendations:

> We believe that the secret of a national feeling which overrides tribal and local loyalties lies in bringing about much more conscious mixing within our education system than is at present practiced (Kenya Education Commission Report Part I, 1964, released 13 December 1964).

This was the basic tenet supporting the commission's statement on long range objectives and so-called specific purposes for the development of the education system. These objectives and purposes are quoted in full from The Development Plan 1964-70 that incorporated the Ominde Commission Report:

Long Range Objectives

1. To provide universal education through primary school,
2. To insure enough places at the secondary and higher levels to educate those with recognized abilities.
3. To organize the educational system to meet the manpower needs of the country (Republic of Kenya, The Development Plan 1964-1970, p. 101).

In his introductory statement, Prime Minister Kenyatta underscored the second objective:

> Our plan places particular emphasis on the expansion of secondary education. . . We plan to have 2½ times the number of Form IV school leavers in 1970 that we had in 1963 (Op. cit., p. i).

Specific Purposes

1. Education is a function of the Kenya nation; it must foster a sense of nationhood and promote national unity.

2. Education in Kenya must serve the people of Kenya and the needs of Kenya without discrimination.

3. Our public schools are an instrument of the secular state, in which no religion is privileged, but they must respect the religious convictions of all people.

4. The schools of Kenya must respect the cultural traditions of the peoples of Kenya, both as expressed in social institutions and relationships.
5. An excessively competitive spirit in our schools is incompatible with our traditional beliefs and must be restrained. Every young person coming from our schools must be made to realize that he has a valuable part to play in the national life.
6. Education must be regarded, and used as an instrument for the conscious change of attitudes and relationships, preparing children for those changes of outlook required by modern methods of productive organization. At the same time, education must foster respect for human personality.
7. A most urgent objective of education is to subserve the needs of national development.
8. An outcome of our education provision at all levels must be adaptability to change.

English was named the universal language in all schools, but Kiswahili was made compulsory in primary school "as a unifying national influence and a means of Pan—African communication . . . ." (op. cit., p. 10, quoted in Sheffield, 1973, . 88).

While the Commission was primarily concerned with primary education, some of the 160 recommendations dealt with the future of secondary, commercial and technical, and adult education.

The Institutes of Science and Technology were not mentioned in the Ominde Report or in the first development plan of the new independent government, but references were made to the practicability of providing technical secondary education in separate schools rather than as part of general education schools. Critical need for a generation of trained manpower was, again, considered essential to lead the nation toward economic self-sufficiency. The Commission, however, was very skeptical about the rapid growth of the harambee schools that were springing up in great numbers, and urged that this trend be immediately arrested. Inadequate facilities and poor teaching were cited as reasons for the negative reaction. Enlarging and improving the present secondary schools was urged.

President Kenyatta voiced the same view in a speech at the dedication of Githunguri Secondary Harambee School in 1964:

> The vast majority of our people are working constantly to ensure an education for their children. This is good but if these children go to bad schools, without adequate facilities and without good teachers, the kind of education they receive may not help them much in after life (Quoted in J. Kenyatta, Harambee: the Prime Minister of Kenya's Speeches 1963-64, Nairobi, 1964, p. 84 - speech on October 10, 1964, found in Furley and Watson, p. 368).

Part II of the Education Commission Report released in the following year (1965) continued the same negative reaction. The movement should be sharply controlled. No harambee school should be authorized unless it was directly related to one named in the Kenya Development Plan. The schools should not go beyond Form II, and the better students should be directed to government-aided schools (The Kenya Education Commission Report, Part II, 1965, pp. 24-25).

Although the government attempted vigorously to slow the development, these unaided schools continued to grow rapidly. In 1968, for example, approximately 245 of the 369 unaided schools were the harambee type. The Government began to allow teachers to transfer from government to harambee schools, and by 1970 was in a position to provide aid (Furley and Watson, 1978, p. 370).

Activities and events pertaining to technical education prior to the de la Warr Commission of 1937, Asquith Commission of 1943, and at the time of the 1958 Lockwood Commission should be reviewed to complete the chronology leading to advanced technical education in Kenya. Appropriate material found in the Education Department Triennial Survey, 1958-1960, Ministry of Education annual reports of later decades, and the Kenya Government development plans (beginning with the Revised Plan dated 1965-66 to 1960-70) will be summarized. Because of the significance attached to it, the report of the Ominde Commission incorporated in the First Development Plan, was reviewed earlier in this section.

A brief historical account of technical education, including dates and events, is given in the opening sections of the 1958-1960 Triennial Survey of the Education Department.

Technical education was already underway in the colony when the Education Department was established in 1912. Mission schools had training units in brickmaking, masonry, carpentry, and blacksmithing. Soon after the establishment of the Education Department, the Government opened a school in Machakos with training in practical skills. Others did not follow until after World War II. A second, Thika Technical and Trade School, and a third, Nyanza Technical and Trade School, were opened in 1949 and 1950, respectively. Another, Mombasa Institute of Muslim Education, was established the same year, specializing in woodworking and engineering trades.

During the same period, the Willoughby Committee recommended building a technical and commercial institute for all races in

Nairobi. Early in 1951, Royal Technical College was opened. It is important to note that the emphasis was shifted from technician to technologist training. In the British nomenclature, "technologist" was closer to a semi-professional level, and therefore of higher grade and status than "technician."

The Harambee Institutes of Technology were mentioned for the first time in the Ministry of Education Annual Report, 1973. Campus construction was underway. Concrete was poured for buildings at sites in Murang'a (Murang'a Institute), in Kisumu (Ramogi Institute), and Nyeri (Kimathi Institute). Kiambu Institute opened courses in business education and building crafts. Dr. O. Eklof joined the Ministry of Education as planner and coordinator of the system in 1973.

Further details of the development of advanced harambee institutes will be presented in Part II where the beginnings of the individual colleges will be traced. Other documents from the 1964-1974 decade account for the expansion of technical education leading to the postsecondary system, and the announcement of the government's intention to encourage and support the new venture.

By 1954, the Nairobi institution officially named the Royal Technical College of East Africa had developed advanced courses in engineering and scientific and allied subjects. However, students were not admitted until 1956. By 1960, trade schools at Kabete, Thika, Sigalagala, Kwala, and Machakos enrolled a total of 1128 students with an annual graduating class of 300 artisans.

Kenya Polytechnic opened in January 1961 with courses between the "O" and "A" certificate levels. In addition, advanced courses were available that led to university entrance. This is a striking example of an attempt to articulate curriculums and to honor the work at the next highest institution - a process called "academic transfer" in the United States.

The series of Ministry of education Annual Reports from 1968 through 1973 provide a further listing of events undertaken by the Kenya Government to improve the technical education component of the new national system:

1. The Education Act of 1968 gave legal status to the Kenya Institute of Technology that had been in existence since 1964. Workshops and classes for teachers were held, and syllabi in various subjects were developed in cooperation with the University College, Nairobi (pp. 8-9).
2. During the 1969-1970 year, Kenya Polytechnic introduced hotel management and aeronautical and marine engineering. Mombasa Technical Institute sponsored specialist courses in chemical plant operation and fishing (pp. 5-6).
3. Through 1971, 8 secondary vocational and 4 secondary technical schools offered secondary to diploma level courses (pp. 6-9).
4. The 1971 Annual Report carried the note that some selected students were allowed to continue with an academic Form V and VI preparation for university degrees in engineering - evidence, again, of reciprocal credit exchange (p. 11).

5. In 1973, the Kenya Government added 17 harambee secondary schools, increasing the number of aided schools to 380. Unaided schools totalled 650, and 187,767 students were registered in both categories of schools (. p. 33).

The National Industry Training Scheme for technician apprentices was established by the National Industry Training Act of 1972. Industry was encouraged to develop cooperative programs with the centers already established and with other institutions identified in the formal system. This was to help to overcome shortages of skilled craftsmen and technicians. Cooperative education began to take form during the same period. Communities started village polytechnics and postsecondary harambee institutes. Similarly, the Government promoted technical secondary schools, the polytechnics, and other types of programs sponsored by various ministries.

Several years earlier in 1967 the Cooperative College of Kenya opened in Nairobi, and the first phase was inaugurated by Mzee Kenyatta on July 7, 1972. Distance programs for individuals in the cooperative movement were started, and a wide variety of short courses, workshops, and seminars continued to be offered. In recent years, diploma courses in cooperative management have been added for "A" level school leavers. Some courses are heavily subsidized by the National Government (Daily Nation, November 14, 1986).

Portions of the Ominde Commission Report featured in the Republic's First Development Plan 1964-1970 were presented in a revised plan covering the years 1965/66 to 1969/70. No specific reference was made to the harambee postsecondary movement in the overlapping plan, but postsecondary graduates were encouraged to apply for loans (Kenya Education Commission Revised Plan 1965/66 to 1969/70, p. 311).

In the Second Development Plan 1970-1974, attention was given to the value of linkages between secondary schools and trade and industry, pointing toward more applied subjects and accompanying teaching methods, and with less emphasis on academic education. While primary school education was referred to as foundation for living, i.e., literacy, citizenship, the post primary schools were directed to prepare young people for work. A rapid expansion of Forms V and VI was proposed (sections 2.48 and 2.50). New courses were recommended for the Kenya Polytechnic in such fields as printing, catering, commerce, and technical teacher training, and in the University, an expansion of curriculums in the sciences, new courses in journalism, law, and agriculture, as well as some additions to the arts. Increased government financial support for adult education was also recommended (section 251).

Early evidence of the 6th form college idea was found in the Trienniel Survey of 1964-1966 and the Annual Report of 1966. The Kenya Education Commission (begun in 1964) had urged the upgrading of these schools. By 1966. 34 institutions had been teaching up to Forms V and VI. These had included Strathmore College and Kenya Polytechnic. The latter had undertaken 6th form work without Form IV preparatory work. To relieve this situation, Kenyatta College was converted to an intermediate college during the 1966 year (Annual Report, 1966, pp. 6-7).

Sixth Form education was given further impetus by a prestigious group of educators appointed in 1970 to develop a comprehensive educational development plan. The report submitted by the team leader Gordon S. Bessey in 1972 was a part of the Second Development Credit Agreement between the Republic of Kenya and the International Development Association of the United Kingdom. This report, called A Study of Curriculum Development in Kenya, urged that more time be spent in 5th and 6th form classes in the several secondary schools, and that this advanced work be expanded to a 6th term. The team commented that an additional year at the University would be twice as expensive as a full **2 years** in a 6th form school (Bessey, op. cit., pp. 58).

As the team further pointed out, only a few 6th form colleges were operating in Kenya in the early 1970s. Strathmore College and the Alliance High School for boys were two. It was recommended that 4 schools be selected from "high cost" institutions in Nairobi and converted into a size to accommodate 450-500 students. These could offer at least 17 advanced subjects to prepare for university study and other professional work. This type of well-designed college "could do much to develop both the intellectual and social qualities of the students and assist them to make a smooth transition from secondary school to higher education and adult life, and to take full advantage of the opportunities ahead of them" (Ibid. p. 165). The team also recommended that courses for higher school certificate qualifiers in technical and commercial subjects, the arts, and general subjects be offered in at least one 6th form college.

As the preceding material suggests, emphasis on the 6th form feeder college was closely allied with expansion of technical education in which the Canadian Government was, and continues to be heavily committed. In addition to the transition college idea - bridging secondary and higher education - the Bessey Report urged the expansion of the polytechnic system with this logic. Soon, they pointed out, Harambee Institutes of Technology will be offering technical education and training at least to the "O" diploma level. Within 5 years there may be a large enough student population to require another major institution in the country - an advanced school of technology, science and arts possibly in Nairobi. At the same time, consideration should also be given to other institutions now engaged in high level manpower training outside the university system (Ibid. p. 69). [N.B. This may have been a reference to the expansion of the institutes of technology as well].

Paralleling the Thompson/Schriven Report (1970), the Bessey Task Force also recommended that suitable courses be added at Mombasa Institute of Technology for college-based students. In this was included a junior college section for "A" level studies in electrical engineering (Ibid. p. 72). The recommendation was made somewhat more explicit in the summary section:

> 6.74 That a "Junior College" section should be introduced when Mombasa Technical Institute reaches polytechnic status, and it should offer "A" level and equivalent courses in technical and vocational subjects (Ibid. p. 245).

No explanation was offered for the use of the terms"junior college," and "technical and vocational subjects." The author can only surmise that these may have been retained from the report of the University of California group that in 1962 recommended the establishment of an experimental comprehensive junior college in Kenya. This report will be reviewed in the second part of the present document.

To support their thesis, the Bessey Task Force reasoned that students should be allowed to move to the next higher stage - at that time virtually impossible for those in non-university courses - to achieve university entrance. The team urged Mombasa Technical Institute in consultation with Kenya Polytechnic and the Ministry to attempt to influence the University to change its position. They pointed out that students in alternative routes in other countries [N.B. notably the United States] have been shown to be "fully comparable" with those going through conventional 6th form and "A" level courses. Alternative courses that were referred to as "integrated" have an important advantage of realism especially those requiring practical projects (Ibid. p. 72).

It was specifically suggested that feeder institutions could grow out of existing secondary schools made into 6th form colleges. These should then offer post-4th form full-time courses as well, and cater to industry-released students (Ibid. p. 73).

The Ndegwa Commission Report published during the same period (1971) also spoke of feeder colleges which might be established at such placed as Embu, Kakamega, Kisumu, Mombasa, Nairobi, Nakuru, and Nyeri (Ndegwa Commission, 1971, para. 433). Since then, Harambee Institutes of Technology have been opened in all of these areas, but not as feeder colleges.

Early in the 1970s, the Canadian Government undertook a series of formidable projects in technical education. A document by Gallagher, et.al. accounts for the formulation of technical teacher preparation to prepare faculty ... ."well versed in human and technical skills necessary for success in industry" (p. 108). In July 1971, a team was sent to Kenya that advised building an institution to be named the Kenya Technical Teacher's College (KTTC). The self-contained Nairobi college, to begin classes in January 1974, was envisioned as a professional status institution providing advanced credit toward degrees plus in-service and up-grading courses (p. 109).

A planning team was appointed to complete the detailed designing and cost analysis of the 22.1 million project. The document, listed in the bibliography under Bigsby, et.al. (1972) provided 243 person years of training and 143 person years of Canadian advisors and full furnishings and equipment. The entire project included a 5-year planning and construction period and a 6-year operation phase. CIDA participation was scheduled to be continue until August 1984, but a second phase recommended by an evaluation mission extended the participation until July 1989. Phase 2 shows a total budget of $7,527,300 (Memorandum of the Canadian High Commission Office, Nairobi, Plan of Operation for KTTC Phase II Project, January 2, 1985, section 101).

The KTTC situated in a Nairobi suburb is fully self-contained. It can accommodate 500 students as boarders. As additional 100 may be assigned to practical attachments in industry. The non-degree status courses are 3 and 4 years. Students are admitted with both "O" and "A" examination passes. Prominent courses include business technical education and trade technical training.

CIDA has continuing projects in 8 of the harambee institutes. These are all specifically written to include such help as technical assistance, training in Canada and Kenya, and equipment, books, vehicles, and other support materials.

Four Canadian community colleges were solicited to help by the Association of Canadian Community Colleges which has been the implementing agency for CIDA. These supply instructional support in specific areas Humber College (Ontario) and Senaca College (BC) in building construction and water technology, Lethbridge College and Olds College (Alberta) in agriculture.

A second nation, Denmark, has been very active since 1974 in support of the harambee institutes. Through DANIDA, the Danish Government has contributed over 13 million D.Kr. and 115 man-years of personal assistance (DANIDA, op. cit., p. 1).

The current contract for projects involving 5 institutes, Murang'a, Kirinyaga, Western, Kiambu, and Rift Valley, was completed in December 1986. Projects included alteration and improvementsof buildings, new machines, equipment and tools, training materials, and teacher training programs primarily for Kenyan staff personal.

USAID has recently given priority attention to private enterprise development in its program of economic assistance. The Private Enterprise Development Project proposed in a strategy statement for 1987 is centered on expanding the capacity and improving quality of technical training in the nation's post-postsecondary institutions (USAID, 1985, in Kerre, op, cit., 1985, p. 6).

Since Uhuru, the national polytechnics have been leaders in training middle-level technicians and semiprofessionals - a notch above present operational roles of the Institutes of Technology. Two polytechnics, Kenya Polytechnic in Nairobi and Mombasa Polytechnic, currently enroll between 5000 and 6000 students each. Eldoret Polytechnic is scheduled to open in 1987. Technical courses lead to the HND. All 3 are hoping to become universities. The delivery system most prominently used by the polytechnics is closely related to cooperative education. Much of the work in certificate and diploma courses is offered on a sandwich block-release or day-release basis with industries sponsoring employees. Students also attend in-service courses at work while studying part-time at the polytechnic. Engineering courses are, in fact, only offered to students so-sponsored. For the most part, technician courses are half theoretical and half practical, and diploma courses are 70% theoretical and 30% practical (Kerre, November 1985, pp. 44-45). This relationship is one of the significant differences between the polytechnics and institutes. The latter offer far less theory.

The Kenya Industrial Training Institute opened in 1964 under the Ministry of Commerce and Industry, and precursored the National Industry Training Act. Located in Nakuru town with about 300 students, its curriculum design is more like the institute's in that 60% of the work is on practicals. But unlike the institutes, 20% is devoted to business studies. The Nakuru industrial training institute is also involved in R & D activities in collaboration with the Kenya Industrial Research and Development Institute (Ibid. p. 50-51).

Moi University opened in 1984 near Eldoret with an initial faculty of Forest Resources and Wildlife Management, is the first university with a technological focus. The specifications drawn up by the "working party" refer to breaking the technological transfer barrier (transferring technology from developed to underdeveloped countries) and developing practical solutions to problems through research and teaching. These aims are to be followed by the present 10 faculties and institutes (Ibid. pp. 54-56).

Development of skilled manpower remains as one of 3 priority purposes for education announced in the 1984-1985 Development Plan recently released by the Government as the fifth development plan published during the 20th anniversary of Uhuru (Republic of Kenya 1984, p. 148). Other purposes were (1) equal opportunity for all and (2) the enrichment of heritage. The latter poses opportunities for the Kenya Institutes of Technology referred to in Part III of this report.

Another section in the Plan also has direct institute involvement. Section 6.99 (p. 149) announces a phased program to convert existing technical schools into postsecondary technical institutes to meet middle-level manpower. This suggests the possibility of changing existing secondary institutes into post-secondary technical colleges, particularly those government-sponsored. Comments will also be made about this development in Part III.

The Harambee Institutes were mentioned in several sections of the latest development plan. In Chapter I (p. 36) the colleges were referenced as having emerged along with other self-help projects. No institute figures were included under section 1.77 (p. 37) where enrollments at all other levels were revealed. The colleges were mentioned twice in Chapter VI. First, under section 6.87 - Manpower:

> Institutes of Technology - among others will be encouraged to expand and offer more realistic and meaningful training of all skills needed to promote and implement economic activities (p. 147).

The second, section 6.107 (p. 151) indicates that only 12 operational institutes of technology have been established by local communities. Since 1977, the Government has furnished about 40% of recurrent costs. Efforts will be made to extend the number of colleges from 14 to 20, and to include private sponsorship and to expand work opportunities.

Sub-sections of section 6.99 (pp. 149-150) refer to the 8-4-4 education plan, the full 8-year basic program having been established in 1985. Sub-section iv (p. 150) indicates a shift from physical expansion to greater training opportunities for those who are unable to proceed for further formal education. These include government artisan and craft-level training.

The reference to the phenomenon called "articulation [of courses] and transfer" [of credits and grades] will be reviewed in Part III.

In summary, Kenya was the first African nation to prioritize technical education. Growth was rapid and marked with diversification. Many types of institutions both postprimary and postsecondary sponsored by the Government and/or locally, and some supported, at least partially, by industry, are now involved in technical education. The overriding emphasis appears to be on national manpower needs through industry and self-employment.

A great deal of overlap exists in teaching techniques and training styles. A detailed investigation would be invaluable in the government's determination to sort out and control overlapping and duplication vis-a-vis financial commitment.

Although the National Council for Science and Technology has been actively engaged in conducting manpower studies, the latest completed in 1982 and published in 1985 revealed a continuing shortage of scientists, technicians, and artisans despite energetic training efforts. Even more important is the possibility that the education now provided may not be the best combination of knowledge and practice.

Finally, technical training as an entity of government appears to lack administrative cohesiveness. The schools engaged in this admittedly complex and vital area are dispersed among 4 divisions of the National Government: The harambee institutes in the Minstry of Education, the 3 industrial training centers in the Ministry of Labor, the youth polytechnics in the Ministry of Culture and Social Services, and the specialized institutions under the National Youth Service. The multiple locations for what would appear to be a common educational effort and the 4 separate administrative policy offices signal a weakness that could be at least partially corrected by centralizing the executive leadership under a single ministry or agency. The private or semi-private nature of the Harambee Institutes of Science and Technology lessens their priority status within the Central Government.

More will be said on this point in Part III on the future of the harambee institute movement.

PART I - SECTION 3

THE HARAMBEE SELF-HELP MOVEMENT

The Kenya Harambee Self-Help Movement emerged in large measure from the determination of the Luo living in Western Kenya and the Kikuyu in the Central Province to remove themselves as far as possible from the influence of European missionaries. The Kikuyu, in particular, resisted the rapid growth of mission-sponsored independent primary schools by strengthening their own schools and churches. Self-help committees of Africans determined to formalize schooling, struggled to maintain traditional customs and beliefs (Keller, July 1973, pp. 3-4).

Mention was made in the previous section of the teacher's college located in Southern Kiambu founded by Peter Koinange and later strengthened by Jomo Kenyatta. These leaders worked tirelessly to build an institution of comparable value to the mission-sponsored schools. While their success remains debatable, this expression of self-help self-reliance took hold in African societies. Following the Mau Mau disturbance and the surge toward independence, "self-help" became a powerful motivator.

The etymology of the word"Harambee" can be traced to a work-gang cry, "aaaaa-mbee!" that meant "ready-push." "Let's work together," is a liberal English translation. In Kenyan languages, the meaning in terms of an activity is: "community cooperation" or "helping one another." "Self-reliance" was also a frequently used slogan particularly in rural areas, along with other catchy phrases such as "Freedom and work" and "No manna from Heaven" (Hill, 1975, p. 1).

The literal translation of "Harambee" is "Let us pull together." The phrase is a descriptor of local community fund raising drives or contributions of labor to initiate various kinds of projects. The most popular and best known of these have supported the self-help secondary schools, and more recently, the postsecondary institutes of technology.

The harambee self-help idea is closely related to the Mwethya neighborhood work party system. Among the Kamba, Mwethya work parties traditionally join self-help group projects. "People work in line, often to the rhythm of worksongs which lighten the job as much as the chatting, gossiping, and joking . . ." (Hill, p. 2, for a detailed discussion of this relationship see the Hill Occasional Paper).

"Harambee" became the national motto following Jomo Kenyatta's dramatic pronouncement during his acceptance speech as President of the new Republic on June 1, 1963. He said, in part:

> ...As we participate in pomp and circumstance, and as we make merry at this time, remember this: we are relaxing before the toil that is to come. We must work harder to fight our enemies—ignorance, sickness and poverty.
>
> I therefore, give you the call: HARAMBEE! Let us all work hard together for our country, Kenya.
>
> (HARAMBEE! Jomo Kenyatta. The Prime Minister of Kenya's speeches, 1963-64, Oxford University Press. Quoted in Abreu, 1982, p. 211. Also in Jomo Kenyatta, SUFFERING WITHOUT BITTERNESS, 1968, pp. 206-207).

Seven months later, he presented a further challenge in opening Parliament on December 13, 1963:

> ...Our motto of "harambee" was conceived in the realisation of the challenge of nation-building that now lies ahead of us. It was conceived in the knowledge that to meet this challenge, the government and people of Kenya must pull together. We know only out of our efforts and toil can we build a new and better Kenya. This then is our resolution....
>
> (Ibid.).

Probably in direct reference to Kenyatta's speech to the Parliament, The Financial Times of London carried this reaction:

> The Harambee Movement is one of the most fascinating developments of post-independence Kenya. Throughout Africa, self-help is recognised as one possible aid to development but it is difficult to think of another country where it is so powerful and so pulsating with life as in Kenya.
>
> (The Financial Times. Wednesday 13 December 1972, England, p. 24. Quoted in Abreu, 1982, p. 1.).

The first "harambee" school, Chavakali Secondary School, was established in 1960 in Maragoli, North Nyanza district. Vocational agriculture was its principal course. By 1964, 50 had opened, and 30 more by mid-1965. At that time, the schools totaled about a third of all secondary institutions. Most were unregistered/unaided and for that reason were illegal (Furley and Watson, 1978, p. 368). As described at some length in the previous section of this report, the Ominde Commission and the Government itself voiced objections to this sudden and rather unruly growth. The Government, albeit gradually, took measures to control and strengthen the self-help schools.

The impact of the Central Government remained marginal. Policy was often ambiguous and not clearly articulated. Another complicating factor was that harambee groups began to favor those projects that the Government would most likely take over. The process by which the Government assumed responsibility for the harambee schools has been described as follows:

1. Money and material assistance was granted to maintain a school for one year.
2. This was continued for four years through the completion of one secondary school class.
3. Accordingly, the community could gradually

withdraw its support as a result of government aid. Communities were prone to open additional non-aided classes.

4. The Ministry also established what might be termed "informal controls" through an examination system for all secondary school graduates. Harambee schools were thereby encouraged to emulate aid schools (Keller, 1975, pp. 7-8).

The pressure to improve, but with strong material support, widened the gap between the aided schools and partially aided harambee schools. The disparity was apparent when harambee school completers attempted to move to a Form V institution of first choice. A study of student differences conducted by Keller in 1973 provided clear evidence. Only a third of harambee school students scored a division III on the EACE in 1970, compared to almost 2/3 of the aided school candidates. The data included 7 years of student records (Keller, 1975, p. 9).

Why was the harambee school movement so popular? Why did it develop so rapidly? Many reasons have been mentioned for this sudden strong support. Keller discussed 3: (1) Developing a school was a direct manifestation of the harambee self-help, self-reliant spirit that captivated the public. (2) People across the country began to recognize advantages that were likely to result from a better education. The existing system could accommodate only a few, particularly in rural areas. Why not organize our own community school? (3) The Central Government through the Ominde Commission had endorsed universal free primary education.

This rapid expansion soon placed heavy responsibility on the secondary system and increased its value and popularity (Keller, 1975, pp. 2-3).

The harambee spirit, first materializing in youth polytechnics and self-help secondary schools, was soon to take form as postsecondary institutes of technology.

Self-help as viewed by institute organizers has been characterized as "pre-emptive developments," meaning that harambee projects have been in reality bids rather than substitutes for support from the Central Government. The underlying objective appears to have been the attraction of government financial help (Godfrey and Mutiso, in Court and Ghai, op. cit., Chapter 11). However, increasing government support is likely to shift power from local district leadership to the Central Government. This probability bothers local harambee institute leaders. Although not possible at the present time, full financial control by the Government is a future likelihood.

Additional comments will be offered on this matter in the final section of the report.

PART II

THE HARAMBEE INSTITUTES: PAST AND PRESENT

SECTION 1

TWO PRE-INSTITUTE DEVELOPMENTS

Two projects completed in the same year, 1962, document the early interest of the new Kenya Government in short-cycle higher education. The first was the establishment of a 2-year scholarship program for Kenyan students in the United States - a one time activity referred to as the Kenya Pilot Project. The second was a visit of a survey team from the University of California to Kenya for the purpose of studying the feasibility of establishing a prototype junior college.

Kenya Pilot Project, 1962-1964.

The first project, officially known as the Cooperative American-African Scholarship Program at the Junior College Level, was sponsored by the Kenya Government, the Agency for International Development, and the African-American Institute. Designed to relieve manpower shortages in Kenya, a select group of 60 Kenya students all Form VI graduates were brought to the United States to participate in either degree or certificate junior college vocational-technical programs on 2-year all-expense scholarships. Junior colleges in New York and Southern California were involved in this unique program.

Following a 1959 airlift project when some 81 Kenyans were brought to the United States for Senior college and university education, the 1962-1964 venture for the first time involved junior colleges in opposite corners of the country. Utilization of American 2-year colleges on a large scale was considered an integral part of, and complementary to, a larger objective - the expansion of Kenya's own educational system.

Representing the New York SUNY colleges was Zmira Goodman, and Frederick C. Kintzer, the Southern California colleges. Testing and selection of the 60 students from a final pool of some 200 were conducted in the USAID Nairobi offices during August 1962. The Kenya orientation was held at Strathmore College and in early September the SUNY A & T College at Alfred.

The 60 students - 58 men and 2 women - remained for 2 years in their respective communities. The New York group was housed in residential junior colleges and the California group was placed in homes in the college communities where the institutions were not residential. In these situations, a separate professional counselor/advisor was named to assist the Kenyans living in the complex Los Angeles environment.

The great majority enrolled in secretarial, accounting, and office management courses on the urging of the Kenya Government. A few selected technical courses including hydrology, radio technology, and general engineering. The greatest need in Kenya during that pre-Uhuru period was for persons trained in office procedures, particularly rudiments of accounting and secretarial training. The nation was a decade away from the appearance of technology.

While a formal evaluation of the cooperative program was never possible, information recently gathered on an informal basis indicates that many of the California group - at least 20 of the 30 - are still active in various areas of Kenya. Some hold prominent positions in the Government and private industry, e.g., member of parliament and assistant minister, comptroller in the

Office of the President, senior accountant in the Office of the President, and managing director of the Industrial Development Bank in Nairobi.

Recommendation Concerning the Establishment of a Junior College In Kenya, East Africa

Two major responsibilities were assigned the survey team from the Center for the Study of Higher Education, University of California, Berkeley, headed by Leland L. Medsker and sponsored by USAID. These were: (1) To determine whether the introduction of a new type of institution similar to a junior college would meet the demands of Kenya better than existing institutions, and (2) Whether the government of Kenya was able and willing to meet the operating costs of such an institution. The team was also asked, in the event it should recommend a prototype college, to present in detail accompanying items, i.e., organizational structure, staff requirements, location and space requirements, and budget (Medsker, et.al., 1962, pp. 1-2).

During the month-long visit in Kenya (between September 5 and October 1, 1962) the team interviewed members of the Government, educators, and students, and visited numerous institutions. They determined that a critical need existed for additional educational opportunities at the short-cycle level, and that an experimental junior college would offer advantages in meeting those needs. In arriving at the second determination, the team gave considerable attention in the report to alternative ways to meet the apparent need: (1) expansion of the Form VI secondary school academic programs underway in some 5 government secondary schools and Strathmore College in Nairobi, (2) establishment of a separate secondary school for Form VI programs only, (3) expansion of Kenya Polytechnic to include Form VI studies in addition to the current pre-employment technical courses, and (4) expansion of the Kenya Polytechnic and others including the Mombasa Institute of Muslim Education to include Form VI academic preparatory studies.

Most critical of the many factors considered was that ". . . .any definite experiment should be given the best possible climate for demonstrating its merits. The team feared that to link a new concept with an already existing institution might hinder the fulfillment of the new concept." (Ibid. p. 13). They further concluded that this period in the development of the new Republic was a suitable time to recommend the experiment.

The college was to have the following characteristics: comprehensive programming and flexible entrance requirements and curricular options, a full-time enrollment of 500 within 5 years, broadly trained faculty and staff and experienced to enable the blending of the practical and theoretical, diversity of the faculty would allow specialized training beyond the present Form VI experience, and the junior college would be a national institution under an appointive board of governors reporting to the Ministry of Education. It would also be multi-racial, coeducational, and primarily a boarding school.

Detailed specifications were included in the team survey report for the master site plan, facilities space requirements, capital costs, and faculties of the several departments. The administration and non-professional staff positions were specified in detail.

The comprehensive curriculum would include occupational preparation for those having completed requirements for the school certificate, with primary specialization in the middle-level occupations beyond the crafts but less than the professions; university prerequisite programs for university age and older students other than first passes on the school certificate examinations; and general education for all students. An example of a basic social science course for all students was given stressing the responsibilities for citizenship (Ibid. 20). This curriculum would include courses in the humanities, science, and mathematics. Continuing and adult education was recommended for upgrading employment, retraining, cultural enrichment and other community education activites.

On financing the experimental junior college, the team recommended a US/AID contract for the cost of the employment and training of the professional staff, and other external aid for the initial plant, facilities, and equipment, and a substantial portion of the administrative and teaching staff costs during the first 5 years. Beyond that, the Republic would assume responsibility for all financing (Ibid. pp. 39-40).

The Kenya Ministry of Education was to state its position in a paper to be submitted to the development committee for consideration and action with confirmation by the Council of Ministers (Ibid. p. 19). A report from the Government was anticipated by the end of 1962.

Despite this indication of strong interest and cordial communication during the survey team's visit, no further exchange was made on the matter. To the best of the author's knowledge, no mention was forthcoming in any of the government reports released in succeeding years, including the Development Plan 1964-1970, The Triennial Survey 1964-1966, and The Annual Report 1966, or any of the annual reports of the Ministry of Education beginning 1962-1963. The idea of an experimental junior college, although well received in the introductory stages, may have proved too complex and costly for the new Republic which faced at that crucial period momentous problems.

PART II - SECTION 2

HARAMBEE INSTITUTE BEGINNINGS: A COMPOSITE

In this section, the institute movement in Kenya is traced from what appears to have been the first specific mention of the heralded system, through the last of the government's annual reports yet to be published.

Pressure for technical institutions particularly in rural areas mounted as the new nation improved its economy, and through the Harambee movement rapidly changed its education system. The demand for technical skills increased expoentially with the expansion of business and industry. For example, a World Bank study completed in 1968 provided the alarming statistic that while primary and secondary enrollments had trebled in the preceding 15 years, there had been only marginal growth in technical study enrollments. By 1971, an estimated 2% of secondary students were taking technical courses (Ramogi Institute, 1971, p.9).

A shift toward technical education at the postsecondary level was further urged by the International Labor Organization in 1972. The Report on Employment Incomes, and Equality in Kenya recommended a series of second chance institutions to cater to drop outs and adults - those who had missed education and were not employable (ILO, 1972, p. 242).

As reviewed in the second section of Part I - Technical Education - the postsecondary institutes were officially announced by the Government in its Third Development Plan 1974-1978. In the introductory section, President Jomo Kenyatta spoke of the "creation of new opportunities in the countryside [that would] reduce the outflow of human resources from the rural areas. . . [The Government] intends to encourage a network of second chance institutions such as the Harambee Institutes of Technology." (p. 406). These should not run parallel or duplicate the structure or content of the formal system of education. The institutes should cater to individuals of widely varying ages and backgrounds, and should provide training within settings responsive to specific localities. These schools should stimulate employment during a period when educational output was beginning to outstrip employment opportunities. Over time, they should develop into a loosely structured network that will feature skill training not as yet provided in the Republic. During the 1965-1970 critical half-decade, only 10% of Form IV leavers had found places in Form V classes or higher education.

The President further announced the creation of a National Commission on Education Objectives and Policies. The Commission, to be composed of prominent citizens both public and private, would be directed to evaluate the present system and define new education goals for the second decade of independence. The Government, he concluded, must carefully control education secondary and tertiary expenditures, since if the present trend continued over 50% of the budget would be allocated to education by 1990. Reduction in education's annual growth should be less than 11% by the end of the development plan period, compared to the present 15% (p. 407).

The Government's positive attitude was announced in more detail in a section of the Third Development Plan entitled The Non-Formal Education Programme. Sections 19.42-.43 and .44 are quoted in full:

> **The Harambee Institutes of Technology**
>
> 19.42. The Government welcomes the lastest manifestation of the Harambee spirit in education. It envisages these new Institutes of Technology as being part of a national system of second chance institutions. These institutions will develop types of training which will differ significantly from those in the formal educational system. They will cater for those individuals, who for a variety of reasons, have not developed their full potential in the formal system (*see* paragraph 19.6). Although it has a vast number of educational programmes to finance in the forthcoming Plan, the Government wants to give support to the Institutes by means of a block grant of £600,000 during the Plan period and other tangible measures.
>
> 19.43. Pending the review by the Commission on Education Objectives of the possible long term roles of the Institutes, the Government will encourage the Institutes through a special co-ordinating Committee, composed of representatives from Industry and Labour, the Institutes and the relevant Ministries. Its secretariat will be provided by government officers from the relevant Ministries.
>
> 19.44. For the plan period, the Government will give a block grant of K£0.6 million, the equivalent of twenty-five percent of its total Development expenditure on the two national Polytechnics—Kenya and Mombasa—to the Committee. The allocation of the block grant to the Institutes will be according to a set of rules which the Committee will compile. The essence of the rules will be that certain courses producing manpower in areas of designated need will be supported with a per capita grant. The government, on advice from the Committee will make provision for the teacher training needs of the Institutes. The Government will offer the support services of the Ministry of Education to the Institutes, in particular the Inspectorate, the Curriculum Development and Research Unit and the Media Unit. (p. 427).

The first action of government involvement dates from 1973 when the above-named coordinating committee was established within the Ministry of Education. In the same year, an UNESCO consultant was commissioned to prepare a report on the harambee institute movement. This was finally accomplished in 1977-78.

Specific institutes were first officially mentioned in the Ministry of Education Annual Report, 1974. This appears to have been an important early year in the development of institutional fund raising harambee activities, curriculum planning, and initial physical plant construction. By the end of the year, 8 were registered under the Ministry of Education:

Kiamosi College of Research and Technology
Kiambu Institute of Science and Technology
Murang'a College of Technology
Ramogi Institute of Advanced Technology
Gusii Institute of Technology
Kimathi Institute of Technology
Western College of Arts and Applied Sciences
Sang'alo Institute of Science and Technology.

Five others were in the proposal stages:

Kirinyaga Technical Institute
Rift Valley Institute of Science and Technology
Coast Institute of Technology
Meru College of Technology
Ukamba Agricultural Institute (p. 33).

Only 2 of the 13 were in operation , Kiamosi and Kiambu. The former occupying classrooms rented from Friends Bible School, graduated 60 secretarial students from a 1-year course, and in May/June admitted about 45 more to the same curriculum. The latter, Kiambu, admitted a second student group in July for a 2-year secretarial program and a 3-year building crafts course. By August, Kiambu had completed the first story for administration, kitchen, dining room, and other facilities, and was able to increase its enrollment to 200 (Ibid. p. 33).

Several other colleges made considerable progress in building construction. Ramogi Institute had completed a large library, Murang'a College's facilities were readied for about 100 students beginning 1975, Western College, Kimathi, and Kirinyaga institutes began construction during 1974, and Rift Valley purchased a large cattle ranch for its new campus (Ibid. p. 33).

Assistance came from The Netherlands, Germany, Denmark, The United States, and Sweden. The last-named country sent a coordinator and central planner to work in the Ministry of

Education, and UNESCO was asked and eventually did in 1976, provide 4 experts to assist in curriculum planning, procuring equipment, preparing examinations, and other necessary details (Ibid. p 33). These beginnings will be included in the reports of individual institutions.

The 1975 Annual Report announced the formation of a Coordinating Committee on Institutes of Technology representing industry and labor, the institutes themselves, and appropriate ministries. General policies and regulations were developed. An Examination Advisory Committee of 15 was also created.

The established institutes were offered experts, teachers, and equipment by the U.S.S.R. "The offer was communicated to all the institutes and the replies submitted to the Treasury (Republic of Kenya, Ministry of Education, Annual Report 1975, p. 60).

An UNESCO representative visited The Republic in September of that year to finalize a project assistance document. Numerous references to this project that included visits to the institutes will be made in Section 3, Part II.

Only three institutes were open by the end of 1975, Kiambu, Kaimosi, and Murang'a. A much greater expansion was yet to come.

The structure of Technical Education and Industrial Training in 1975 is given in Table A. As indicated, the Harambee Institutes remained a questionable entity.

By December 1976, as recorded in the Ministry's Annual Report, 2 other institutes were opened: Gusii and Ramogi. Construction of 4 more was nearing completion, but students had not be admitted at WECO, Sang'alo, Kimathi, and Kirinyaga. Rift Valley and Ukambu institutes were registered with the Ministry. The Government had initiated a student grant program for those enrolled in approved courses in the first-named colleges.

As the synopsis of individual institutes will show, Kiambu Institute was the first to graduate students. In June 1976, 39 of 47 examination candidates were awarded certificates in masonry, carpentry, and plumbing. Phases I and II of construction were completed, and the enrollment stood at 370 with 42 teachers (Annual Report 1976, p. 11). The number of successful graduates from Kiambu increased to 50 the following year.

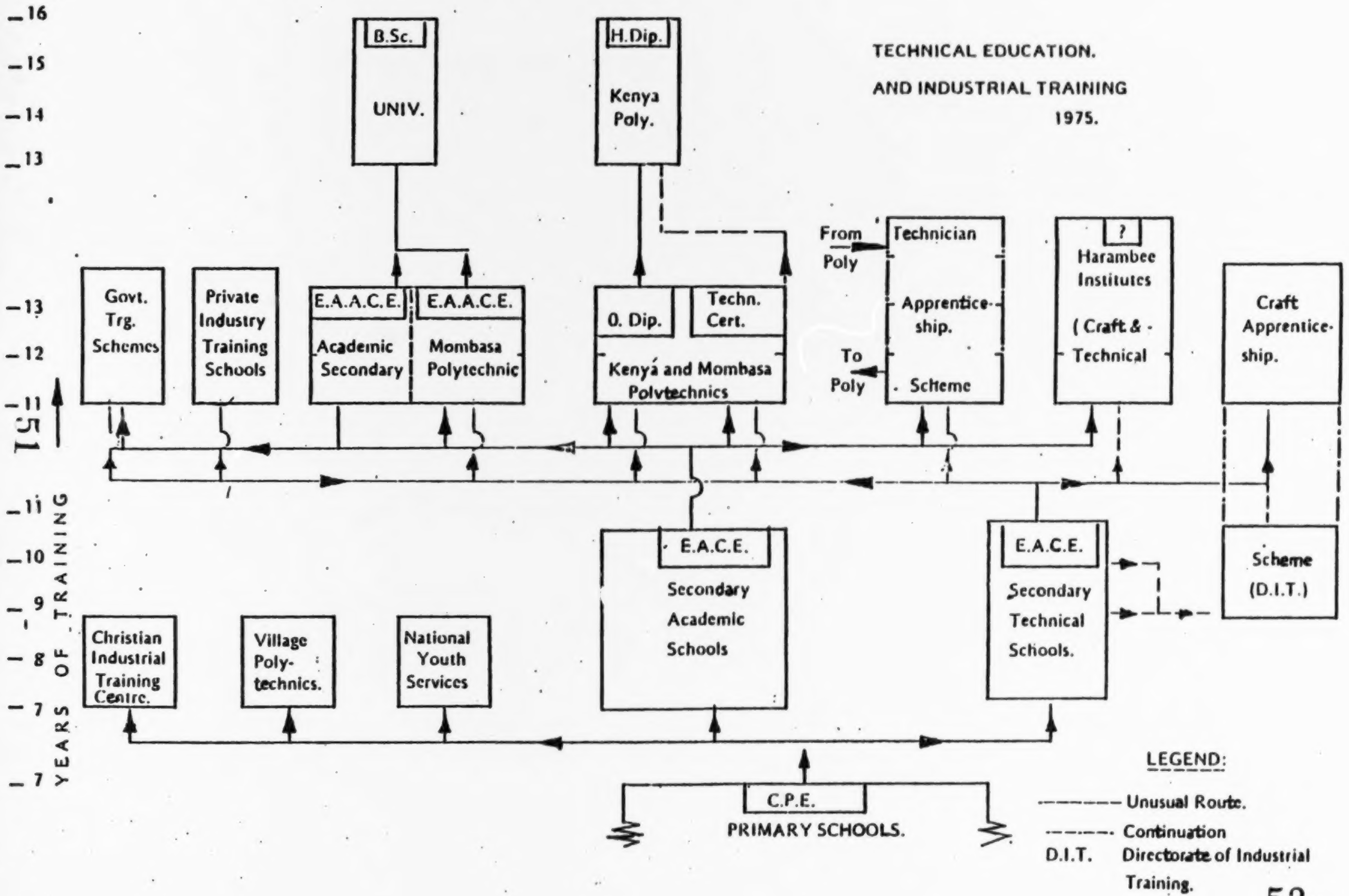
The Technical Education and Industrial Training chart (Table A) shows no connection between the institutes and the technician/apprenticeship scheme, suggesting that the scheme was associated with the polytechnics, not the HITs.

Bennell, op. cit 1984, presents a case study of craft training from 1945 and speculates on the possible demise of the British craft-apprenticeship system. He suggests that the failure of the training levy grant program is the most striking example of the non-correspondence between the official concept of craft training manpower requirements and the plans adopted by many Kenyan industries (p. 51). Bennell refers to the establishment of the 10 Harambee Institutes as the most important development in the craft-training area.

The opening of 3 registered institutes, Kirinyaga, Western (WECO), and Sang'alo, increased the active total to 8 in 1977. The planning and beginning of a teacher training course for institute teachers was viewed as the most important acomplishment

TABLE A

TECHNICAL EDUCATION.
AND INDUSTRIAL TRAINING
1975.


16
15
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8
7
7
YEARS OF TRAINING
B.Sc.
UNIV.
H.Dip.
Kenya Poly.
Govt. Trg. Schemes
Private Industry Training Schools
E.A.A.C.E.
Academic Secondary
E.A.A.C.E.
Mombasa Polytechnic
O. Dip.
Techn. Cert.
Kenya and Mombasa Polytechnics
From Poly
To Poly
Technician Apprenticeship. Scheme
?
Harambee Institutes (Craft & Technical
Craft Apprenticeship.
Scheme (D.I.T.)
E.A.C.E.
Secondary Academic Schools
E.A.C.E.
Secondary Technical Schools.
Christian Industrial Training Centre.
Village Polytechnics.
National Youth Services
C.P.E.
PRIMARY SCHOOLS.
LEGEND:
——— Unusual Route.
–·–·– Continuation
D.I.T. Directorate of Industrial Training.

51

that year. Early in December 1977, teacher training for 24 building instructors began at Kiambu Institute with funding provided by NORAD, The Norwegian Agency for International Development. The Danish International Development Agency, DANIDA. also agreed to finance a similar teacher training program for 28 mechanical and electrical engineering students at Murang'a College. Murang'a was also to receive shs. 300,000 from NORAD for equipment for developing home science courses (Ibid. p. 17).

With the opening of Kimathi Institute of Technology in 1978, the national system had grown to 9. Three created "firms" to act as legal organizations handling contracts for building construction, maintenance, and services. These organizations were to provide in-service training and also to assist in community development. (Annual Report 1978, p. 14).

The earliest available student census for the existing colleges and courses offered during 1978 are shown in TABLE B. Statistical abstracts published regularly by the Government do not carry citations for the Harambee Institutes of Technology.

As TABLE B data indicate, Kiambu Institute and Kaimosi Friends College were the largest of the 9 institutes both in enrollments and curriculums. Secretarial training was the most popular course.

TABLE C showing projected courses for the 9 active and 4 developing institutes, is indicative of continuing growth and expansion of the system. The projections were developed by a section of the Ministry staffed by UNESCO advisors and Kenyans, following an analysis of an International Labor Organization Manpower Survey conducted by the team.

TABLE B

ENROLLMENTS IN HARAMBEE INSTITUTES OF TECHNOLOGY, 1978

	Murang'a	Kirinyaga	WECO	Sang'alo	Kaimosi	Kimathi	Gusii	Ramogi	Kiambu	Total
Masonry									72	72
Carpentry	18								70	88
Plumbing									70	70
Electrical Engr									62	62
Mechanical Engr	68		54							122
Secretarial					70		48		135	253
Accounts Clerk					103					103
CPA					41					41
Building Const.		72						21		93
Tailoring		48								48
Business Tech.			32							32
Agriculture				48						48
Business Study						24				24
Total	86	120	86	48	214	24	48	21	409	1056

Republic of Kenya, Ministry of Education. Annual Report 1978, p. 14.

It is important to note that all courses operating and projected were designed from a perspective of rural life and small business, rather than urban society and large scale industry (Annual Report 1978, p. 14-15).

A 10th institute, Rift Valley opened in 1979. The colleges are identified in TABLE D along with year-end enrollments in 12 courses. Five others had been registered with the Ministry: Taita/Taveta Institute of Science and Technology, Coast Institute, Embu District Polytechnic, and Meru Institute of Advanced Technology.

TABLE C

PROJECTED COURSES FOR HARAMBEE INSTITUTES OF TECHNOLOGY 1978

COURSES	INSTITUTES
Business Technology:	
(*a*) Accountancy	Kaimosi, WECO.
(*b*) Co-operatives	Murang'a, Sangalo, Gusii, Kimathi.
(*c*) Institutional Management	Taita.
(*d*) Secretarial	Kiambu.
(*e*) Transport Management	RIAT, Coast
Building Construction	Kiambu, Gusii, Kirinyaga, RIAT, Coast, Kimathi, Rift Valley.
Building Services	Kiambu, Gusii, Kirinyaga, RIAT, Coast, Kimathi, Rift Valley.
Chemical Engineering	WECO.
Civil Engineering—Rural Access Roads and Irrigation	Embu.
Mechanical Engineering:	
(*a*) Production	Murang'a.
(*b*) Plant.	Muranga, WECO.
(*c*) General and Automotive	Gusii, Kirinyaga, Coast, Kimathi.
(*d*) Agricultural and Mobile Plant	Meru, Rift Valley.
Agriculture	Meru, Coast.
Agriculture—Dry Land Farming	Ukamba.
Agriculture and Fisheries	RIAT.
Horticulture	Kiambu, Gusii, Sangalo, Coast.
Horticulture and Food Technology	Kaimosi.
Electrical Engineering	Murang'a, WECO.
Home Science	Murang'a.
Textiles—Garment Manufacture	Kirinyaga, Rift Valley.
Printing	RIAT.
Tourism—Small Hotels and Restaurants	Taita.

(Republic of Kenya, Ministry of Education. Annual Report 1978. p. 15).

As shown in TABLE D, Kiambu and Friends College again led others in student enrollments. Both were somewhat smaller. The former had fewer secretarial students, the latter had fewer enrollees in the business studies curriculum. The system had increased by 174. Course offerings remained about the same. A new course in mechanical engineering was started at Murang'a.

TABLE D

ENROLLMENTS IN HARAMBEE INSTITUTES OF TECHNOLOGY, 1979

	Muranga	Kirin.	WECO	Rift V.	Sangalo	Friends	Kimathi	Gusii	Ramgoi	Kiambu	Total
Masonry		42		29						64	135
Carpentry		41		28						64	133
Plumbing										64	64
Electrical Inst.										63	63
Mechanical Engr.	85		72								157
Home Science	24										24
Cabinet Making	12										12
Garment Manu.		46		27							73
Business St.			62			124	62				248
General Agri.					75						75
Secretarial						63		53		107	223
Building Const.									13		13
Total	121	129	134	84	75	187	62	53	13	362	1220

(Republic of Kenya, Ministry of Education. Annual Report 1979, p. 6).

Assimilation of the Harambee Institute total program with the nation's technical training system was made possible by the National Examinations Committee.

The craft certificate examination success rate was high. This helped to improve the reputation of the institute system (Annual Report 1979, p. 7).

TABLE E

HARAMBEE INSTITUTES OF TECHNOLOGY: PROJECTED STUDENTS AND TEACHERS

	1979/80	1980/81	1981/82	1982/83
Regular Students	1220	1622	2261	2610
Teacher Trainees	103	168	168	168
Teachers	136	177	274	351

(Annual Report 1979, p. 7).

According to the above table, the growing institutes should have had a student capacity of over 2610 by 1982-83. The total curriculum should have also included about 20 craft and technical courses.

The 1979 Report is the latest published. A 1984 Report has supposedly been completed, but was still not available in February 1987.

Present Situation

National and District Coordination

Coordination of the 15 Harambee Institutes by the Ministry of Education is presently maintained through a unit headed by a Senior Education Officer and 3 other education officers responsible for mechanical engineering, building and civil engineering, and electrical engineering, respectively.

The institute principals have also formed their own organization: the Kenya Institutes of Technology Heads Association (KITHA) which meets regularly to discuss general problems and to help to guide the new institutes. The group is attempting to unite the effort, and on a longer term basis, to develop a national model.

Enrollments, Courses, Development Status

Enrollments of the Harambee Institutes since 1971, courses currently taught, and the development status are depicted in the following 3 tables. Material is drawn from several sources: THE DANIDA HARAMBEE INSTITUTES OF TECHNOLOGY PROGRAMME, MID-TERM EVALUATION, 5-25 March 1984 (Report of DANIDA dated May 1984), ANNUAL REPORTS of the Ministry of Education, and reports collected primarily of individual institutes by the author.

Enrollments

TABLE F depicts a general steady enrollment increase from the first year, 1971, as new institutes were opened and the originals added curriculums. Despite the incomplete figures and the approximations of some numbers, the trend is obvious.

Courses

TABLE G shows the courses - craft and technical - now offered. Some institutes organized the various subject areas in divisions, identifying particular ccurses or groups as sub-divisions, e.g., carpentry and joinery, masonry, plumbing under building trades division. More typically is the separate listing of such offerings. However, such terms as business studies, home economics (science), textiles, are sometimes used to connote collections of courses. Using this angular system, however inexact, a total of 13 subjects or groups of subjects is offered among the 15 institutes.

TABLE-F ENROLLMENTS

Institutes	1971-2	72-73	73-74	74-75	75-76	76-77	77-78	78-79	79-80	80-81	81-82	82-83	83-84	84-85	85-86	Totals
Coast CIT											34	48	102	116	112	412
Embu RWIKA														58	85	143
Gusii GIT					30	30	23	21	53	40	66	93	161	175	180	872
Kaimosi KCRT	24		67	80		180	120	160	187	200	256	256	272	275	280	2357
Kiambu KIST			100	150	150	320	178	178	362	354	444	444	444	444	402	3970
Kimathi KIT									62	108	132	157	210	359	405	1433
Kirinyaga KTI							62	41	129	47	161	183	238	240	360	1461
Meru MECT													100	54	240	394
Moi MIT													34	80	156	270
Murang'a MCT					30	30	60	145	121	264	266	252	453	250	400	2271
Ramogi RIAT						6	11	36	13	52	201	265	330	575	525	2014
Rift Valley RVIST								78	84	530	630	900	1200	1200	1110	5732
Sang'alo SIST							25	75	75	125	95	135	183	173	203	1089
Ukamba UKAI													17	44	54	115
Western WECO							40	64	134	132	168	167	187	160	176	1228
Mathenge MAIT	Opened late 1986 →														16	16
TOTALS	24	—	167	230	210	566	519	798	1220	1852	2453	2900	3931	4203	4704	23777

TABLE G - CURRICULUMS/COURSES

Institute	Province	District	Year Opened	Courses/Curriculums	Projections
Coast CIT	Coast	Taita/Taveta	1981	Carpentry Masonry Bus. Studies Transport Manage.	Gen. Agriculture Electrical/Mech. Engr
Embu RWIKA	Eastern	Embu	1984	Carpentry/Joinery Masonry Plumbing Textiles	Gen. Agriculture
Gusii GIT	Nyanza	Kisii	1976	Carpentry Masonry Plumbing Elect. Installation Bus. Studies	Gen. Agriculture Mechanical Engr
Kaimosi KCRT	Western	Tiriki	1971	Bus. Studies Sec /Accounts Food Technology	Gen. Agriculture Bldg. Construction
Kiambu KIST	Central	Kiambu	1973	Carpentry Masonry Plumbing Elect. Installation (TV) Secretarial Baking General Studies	Bio-medical Assist.
Kimathi KIT	Central	Nyeri	1980	Carpentry/Joinery Masonry Plumbing Elect. Installation Textiles Bus. Studies (CPA)	Engineering Gen. Agriculture
Kirinyaga KTI	Central	Kirinyaga	1977	Carpentry Masonry Plumbing	Gen. Agriculture Water Technology
Meru MECT	Eastern	Meru	1983	Gen. Agriculture Mctor Vehicle Mech. Bus. Studies	Model Farm Engineering
Moi MIT	Nyanza	S. Nyanza	1983	Carpentry/Joinery Masonry Plumbing Elect. Installation Textiles Bus. Studies (CPA)	Gen. Agriculture Forestry Fisheries Energy & Sugar Technology
Murang'a MCT	Central	Murang'a	1976	Carpentry Masonry Plumbing Mech. /Elect. Engr. Water Engr. Home Science Motor Vehicle Mech. Bus. Studies	Short "second chance" courses in all current types of classes

Ramogi RIAT	Nyanza	Kisumu	1976	Carpentry/Joinery Masonry Plumbing Elect. Installation Motor Velicle Mech. Bus. Studies (CPA & Transport Manage. Engr. Tech. (Radio TV)	Marine Technology Fisheries
Rift Valley RVIST	Rift Valley	Nakuru	1979	Carpentry Masonry Plumbing Elect. Installation Agri. Mechanics Textiles Water Technology Bus. Studies Commerce General Studies	Special Agri. Engr. Technology
Sang'alo SIST	Western	Bungoma	1977	Gen. Agriculture Zero Grazing Home Economics	Carpentry Masonry Motor Vehicle Mechanics
Ukamba UKAI	Eastern	Kitui	1983	Gen. Agirculture	DryLand Agri. Bldg. Const.
Western WECO	Western	Kagamega	1977	Mech. Engineering Water Engineering Bus. Studies (CPA)	Foundry Computer Management
Mathenge	Central	Njeri	1986	Building Trades	

Development Status

TABLE H, indicating the development status of the institute system, was adapted from the cited DANIDA report (1984) with minor adjustments. This record shows 6 institutes having developed to planned capacity, 3 approaching capacity, and 7 in early stages. One of the 7, Mathenge, south of Njeri town, was opened late in 1986 with 16 students in a 1-year building trades course. This is the 16th school in the system. Three others are in preliminary planning Sasala (Taita district), Siaya (Nyanza district), and Baringo (north of Nakuru town). The 2nd column - production units - income producing products and material has been added. The information is, again, presented as accurately as possible, given the paucity of documentation.

TABLE H

PRESENT DEVELOPMENT STATUS AND PRODUCTION UNITS

Institutes Developed to Planned Capacity	Production Units
Kiamosi (Friends College of Research and Technology - KCRT	Canning - Food Technology
Kiambu Institute of Science and Technology - KIST	Carpentry Production Units Construction Firm Appropriate Technology Production Unit Bakery Coffee
Kirinyaga Technical Institute - KIT	Furniture
Murang'a College of Technology - MCT	Production Workshop (CETA) Coffee
Rift Valley Institute of Science and Technology - RVIST	All five departments developing Production Income Units Cattle Coffee
Sang'alo Institute of Science and Technology - SIST	Furniture Variety of cash crops
Institutes Approaching Capacity	Production Units
Kimathi Institute of Technology - KIT	Furniture Coffee
Ramogi Institute of Advanced Technology - RIAT	
Western College of Arts and Applied Sciences - WECO	Water Pumps Brick Making Machines Solar Heaters Jikos (stoves)
Institutes in Early Planning Stages	Production Units
Coast Institute of Technology - CIT	
Embu College of Technology - RWIKA	
Gusii Institute of Technology - GIT	Cash crops
Meru College of Technology - MECT	Coffee Maize, beans Livestock
Moi Institute of Technology - MIT	Cash crops
Ukamba Agricultural Institute - UKAI	Cash crops

Financing

As outlined and discussed in the DANIDA Report (pp. 26-29), the institutes have 6 income sources:

1. Government grants - maximum 2800 shs. per student per year, and token amounts for construction.
2. Student fees - ranging from about 2500 to 4000 shs. (annual).
3. Income generating activities - profits from land grown commodities and production units associated with training programs.
4. Donor support - varying enormously among the institutes and ranging from building, equipment and material grants to student and faculty scholarships. Canada and Denmark have been leaders in support for capital construction and equipment. Britain and the United States continue to provide significant amounts for scholarships. The Netherlands, with Small Embassy Projects Program (one-time gifts) and the Studies in the Region (scholarships), West Germany and Switzerland are active in one or both of these broad donor programs, and Japan in certain areas of technical education.
5. Training Levy Fund - several years ago, according to the DANIDA Report (p. 28), transfer of training levy funds by formula to the institutes was a distinct possibility in solving the funding situation on a short-term basis. This plan, however, has run into difficulties. The DANIDA Report suggests that private donor monies paid directly to students to cover education costs appears to be the brightest hope for financial solvency.

PART II - SECTION 3

INDIVIDUAL HISTORIES AND PRESENT STATUS

This section contains the individual institute reports that represented the major focus of the research endeavor. The college histories contain information collected during visits, the results of interviews, summaries of materials presented by the principal or members of his staff, and observations and interpretations.

Every visit included conversations with the principal, deputy principal, one or more members of the teaching and service staffs, and in some situations, a student or a member of the governing board. Flexibility of scheduling and the amount and quality of materials account for variations in organization, content, and length of the 15 individual reports. All of the statements include future ambitions, and opportunities and problems associated with the particular programs, services, or physical expansion.

The final portion of the section contains 10 suggestions relevant to the future development of the harambee institutes. Although the schools have particularized purposes, since each is harambee-inspired, all share several common objectives as members of the national system. While phraseology differs from college to college, the sense of these 3 operational statements is honored by all:

1. To provide both craft and technical education and training primarily to secondary school leavers and to others with lesser credentials as needed in the local district and approved by the Ministry.
2. To offer courses and curriculums at both certificate diploma levels emphasizing practice and practical skills for self-employment as well as industry.

3. To provide manpower training for both urban and rural living, since the students are matriculated in varying proportions from different regions of the country.

Provision is made by some institutes for short courses and in-service classes as funds and facilities allow. General or liberal arts education is virtually nonexistent. Comments will be forthcoming on these situations and other matters following the individual reports, and a section on comparisons with other short-cycle higher education systems.

COAST INSTITUTE OF TECHNOLOGY

Location: Box 34, Voi
Telephone: 281 Voi
Principal: Mr. H. Igwa

The idea of an institute on the Kenya coast was first voiced by Mr. Shako, Minister for Tourism and Wildlife, but according to Godfrey and Matiso, the notion became "very much the creature of the Coast Provincial Commissioner" (Godfrey and Mutiso, in Court and Ghai, ed., 1974, p. 261). The organizers hoped the institute would supplement the technological education at Mombasa Polytechnic (Abreu, 1982, p. 236).

The school was opened in May 1972, and by March of the next year only 1.1 mn. shs. had been raised toward a 20 mn. estimated cost. Coast organizers wondered why the provincial population was not strongly interested in self-help, and what could be done. At that time (1972-1973) a provisional list of courses was issued:

> CPE holders and over - agriculture, fishing, animal production, skilled level crafts and trades: welding, fitting, marine industries, tourism, and commercial subjects.
>
> EACE holders and above - electrical, mechanical, civil engineering technician courses.

No enrollment estimate or count was given in the several early writings reviewed. An information gap appears to exist from the documented launching of the institute until the NORAD/ UNESCO report July 1, 1976. That report and a 2-page UNESCO summary statement on the Harambee Institutes of Technology Project, October 1977, indicate confusion over the direction to be taken and suggest a general inertia associated with the development.

Accordingly, the UNESCO team recommended the following yearly student intake in 4 curriculums:

Building - skilled level	50
Mechanical - skilled and semi-professional	50
Agricultural - skilled	25
Tourism	50
	175

(NORAD/UNESCO, July1, 1976, Annexes II and III).

Visit - November 18, 1986

Although announced as early as 1972, Coast Institute of Technology did not open until July 13, 1981 with a class of 34 in business studies. The originally planned curriculum in transport management had not succeeded. Masonry in the building construction section was started in 1983 and carpentry in 1984, bringing the enrollment to 112. The present group of 108 consists of 30 in building construction, 8 in transport management, and 70 in accounting (up to CPA (I).

Housed in a former tourist hotel only a few km. from Voi town, the institute is conveniently located and has a good water supply. However, the campus is small - only 42 acres, and although workshops are under construction, community help is minimal and at present donor money is entirely lacking. Manpower is available: 10 teachers with building experience, but equipment is very meagre. Programs currently offered are badly affected.

As the principal, deputy, and accountant department head suggested, new institutes continue to have a much harder time than the original group that opened a decade earlier when harambee energy and donor interest and capability were stronger. The officials expressed some optimism in the possibilities of the announced 8-4-4 plan. Institute certificate completers in some fields, especially accountancy, may be able to find jobs as secondary school teachers when the educational system is fully operational.

Coast Institute announced student vacancies in the business department for the term beginning January 1987: 24 each, in the ACNC (accounting) stream, transport management with KCE division III or equivalent requirements (preferably English and mathematics passes), and in CPA(I) (Daily Nation, November 5, 1986).

Despite classroom and laboratory deficiencies, Coast Institute is able to expand its offerings and student body through the business division.

No materials provided.

(RWIKA) EMBU INSTITUTE OF AGRICULTURE

Location:	P.O. Box 6, Embu
Telephone:	20117 Embu
Principal:	Mr. J.J. Nyaga

By 1973, at least 600,000 shs. had been collected for Embu Karurumo Polytechnic out of an estimated cost of 3 mn. shs. Unlike other districts, this was thought of as an upgrading of a village polytechnic (at Karurumo) rather than a new school. About 390 students were forecast for the polytechnic in March 1973 at the CPE level only. The opening enrollment was actually 189 in low-level courses: agriculture, building construction, i.e., carpentry, plumbing, and mechanics and fitting, animal husbandry, charcoal production, banking, home craft, tourism, electricity, village technology, tailoring, driving, and bookkeeping (Abreu, 1982, p. 241).

The NORAD/UNESCO Preliminary Survey (1976) does not list Embu, but appendix C does suggest that civil engineering at the craft and technician levels especially for rural access roads, and small scale water projects could be appropriate future subjects.

Visit - October 27, 1986

The principal, J.J. Nyaga, former lecturer in fine arts at Queens University, England, and for years a lecturer at a Kenya teacher's college, started the Institute in early 1984 with about 58 students. The present class of 85 is enrolled in 3 subjects: the first 2 years of crafts - building construction, textiles, carpentry/joinery.

Many are third-level examination passes, and some are fourth-level "fails " which includes poor marks in mathematics.

The principal mentioned the importance of giving the less successful students chances to learn a craft or trade. They have no other opportunities. All are on-campus boarders.

Several workshops have been constructed, and plans are underway for permanent hostels and dining quarters. Programs in developing the Institute in 2 short years is viewed as considerable and under capable and energetic leadership.

The RWIKA campus is located about 15 km. southeast of Embu. It is very difficult to find. In "back country" above Embu town, there are no directions for motorists.

No materials provided .

GUSII INSTITUTE OF SCIENCE AND TECHNOLOGY

Location: P.O. Box 222, Kisii
Telephone:
Principal: Mr. Abuya Tamero

By June 1973, local citizens of Nyanza Province had promised 17mn. shs.of a projected 14½ mn. fund target. Primary donors were teachers and pyrethrum growers, coffee and tea farmers. Capacity of 500-600 students was envisaged with EACE entry requirements. In addition, 2 or 3 courses were mentioned at craft level with KJSE entry requirements. The EACE entry level: engineering skilled only and business, skilled only. The KJSE entry: engineering and business, semi-professional only, and secretarial training. (Godfrey, 1973, p. 32 and Table 14).

A secretarial course was started in 1976 by an Australian in temporary quarters in Kisii, and ground breaking ceremonies were held in April 1976. Architectural drawings were completed by a civil engineer provided by the Netherlands Volunteer Service. Preliminary curriculums included courses in building construction and the secretarial course (NORAD/UNESCO, 1976). Thirty girls had been admitted to the 22-month secretarial course (Republic of Kenya, Ministry of Education, ANNUAL REPORT, 1976, P.12).

Visit - October 15, 1980

The visiting schedule required stopping during the lunch period, and consequently, the Principal was not in. Stephen T. Ongori, accountant, provided a general information sheet, and commented on the progress of the Institute.

Gusii Institute is situated on a 4--acre plot at the edge of Kisii town. Three-quarters of the 180 students live in or near

Kisii town. Sixteen lecturers teach in the 3 subject areas: building construction (men) - 1 year, secretarial (coed) - 2 years, and accounts clerk (coed) - 1 year. The accounts clerk course is actually 15 months or 4 terms, and both stages I and II can be taken simultaneously.

Similar to other colleges in the system, student costs at Gusii are:

1st term (May-July)	2000 shs.
2nd term (Sept.-Nov.)	1200
3rd term (Jan.-Mar.)	1000
fees: caution	100
activity	200
medical	100
equipment	100
materials	50

Stationery and textbooks are provided, but student responsibilities include bedding, uniforms (for some students) wash basins, and other appropriate clothing.

Help for the construction of workshops, for equipment, etc. is necessary to launch a mechanical engineering course. Training in general agriculture is also overdue in a region with very fertile land.

Gusii Institute was opened in 1976. While located in a viable service area, it suffers from the lack of community support and government and external funding.

Materials: 3 information sheets

KAIMOSI (FRIENDS) COLLEGE OF SCIENCE AND TECHNOLOGY

Location: P.O. box 150, Tiriki
Telephone: 64, Tiriki
Principal: Mr. Michael Wasika

Kaimosi Friends College, renamed Kaimosi College of Research and Technology or Science and Technology, was the earliest of the harambee institutes, opening on May 3, 1971. Its Quaker connections in the United States and around the world helped to ease financing of a 100-acre permanent site in Tiriki. By October 1972, 760,000 of an estimated capital budget of 5.3 mn shs. had been collected (Godfrey, 1973, p. 34).

The development of education in the Western Province offers an interesting commentary on Post-World War II history in Kenya. In 1959, Friends missionaries started Kenya's first non-boarding secondary school on a self-help basis in Kaimosi and attempted to introduce courses in agriculture and industrial arts. A year later the East Africa Yearly Meeting of Friends requested the Friends United Meeting in America to start a college in the Western Province. Secretarial and commercial skills were in great demand. In the words of Professor F.F. Indire, chairman of the Permanent Board of the East African Yearly Meeting:

> . . .What was being planned was essentially a junior college. This will be a harambee school all of us pulling together to bring it into being. . . For Friends all over the world will have to take part to make it a success (Friends United Meeting. Quaker Life, Annual Education Issue, November 1967, Quoted in Abreu, 1982, p. 230).

In 1968, a feasibility survey was conducted by Landrum Boling, then President of Earlham College, Indiana, and Milo Ross of George Fox College, Oregon. The plan included starting with a secretarial course and a department of business management, and later to add agriculture and rural leadership. Until August 1975, The college used buildings of the Kaimosi Bible School. The completed new unit consisted of 5 classrooms, 3 offices, staff room, stores, and a hall used as a dining room. Two teacher homes and 3 dormitories were ready in July 1976 (NORAD/UNESCO, appendix D, p. 2).

At initial full capacity, the college was to admit 360 students, but in the early years, enrollments were actually between 40 and 60. A total of 180 was reached during the 1976 school year (NORAD/UNESCO, 1976, p. 1).

Minimum entrance was set at the EACE. First offerings were a 1-year secretarial course including typing, shorthand, bookkeeping, commercial knowledge, and languages, i.e., English and Kiswahili. The 3-year business management course consisted of accounting, auditing, costing, executorship law, bankruptcy law, commercial knowledge and law, company law, economics, industry, and financial statistics and taxation (Abreu, p. 231). At full capacity, the output of 162 trained graduates was originally anticipated, i.e., 60 secretaries, 57 business managers and 45 agriculturists (Godfrey, 1973, p. 34). Planned enrollment and staffing from 1971 through 1978 are shown in Table 13 in Godfrey. The 1972 per student expenditure was estimated at 12,060 shs. Fees were less than 2,000, leaving a substantial gap to be raised externally. The secretarial and accounts clerk courses involved external examination, and in 1975, the certified public accountant courses (stages I and II) were added. The U.S. Peace Corps provided teachers.

A food preservation plant was installed in 1976, and a sewage plant was being developed to serve the college and community (NORAD/UNESCO, appendix C, p. 1).

Visit - October 24, 1986

As indicated, Kaimosi College, the only institute sponsored by the American Friends Society, was the first harambee institute with a beginning class of 24 secretarial students in 1971. An accounts curriculum started in 1973, and until last year, a CPA(I) class was offered.

A food technology (craft level) program was started in June 1985. This project is an unusual, if not unique training unit. It is likely to become a diploma course as early as 1988. A well-equipped laboratory is now intact. The canning unit supports a class of 18. The administration is searching for a sponsor to facilitate this operation of commercial quality.

The Principal, in office since 1976, provided the following breakdown of courses and yearly student costs:

2-year secretarial course - all female - 4500 shs. tuition
1-2-3 year accounts courses - coed - 5000 shs. tuition
1-year food technology course - coed - 5000 shs. tuition

The college must budget about 18,000 shs. per student per year. The Government provides about 1700 shs.

The Principal also explained recent national changes in governance/administrative patterns. Beginning this year (1986) all institute employees, including principals, are government employees. Since April 1985, the institute boards of governors have been apointed by the Government through the Teacher Service

Commission. Board of trustees remain the owners. The centralized national system now consists of 41 districts in the 8 provinces. District development committees are controlled by the ministers in each of the provinces.

He further described the external system of examining bodies. In accountancy, for example, the public body that is used to relate programs to the university system is called the Kenya National Examination Board. The private agency representing the Kenyan accountants and secretaries is named the National Examining Board.

Future courses should include general agriculture with the food technology specialty, and building construction primarily brick work. A modest sized institution - 400 to 500 students - is anticipated. The total enrollment now is 280.
The campus of 200 acres is nicely landscaped. Buildings appear to be in good condition with playing fields and other accommodations.

Materials: Friends College, Kaimosi (1974)
Friends College, Kaimosi (1978).

KIAMBU INSTITUTE OF TECHNOLOGY

Location; P.O. Box 414 Kiambu
Telephone: 22236 Karubi
Principal: Mr. Wilson Muchemi

The people of Kiambu led by a teacher, Bedan Kirimu, suggested that a land parcel of 30 areas zoned for a high school at Gathanga should be used for a new technical institute. Non-politicians and academics were solicited, including J.K. Koinange, a provincial education officer for Nyanza and later University of Nairobi Dean of Students. Koinange convinced the County Council of Kiambu that an institute should be constructed on the site (Abreu, 1982, p. 232).

The primary objective was to produce technicians - those with practical skills - not to provide academic education. The leaders wanted to prepare students for self-employment beyond mere job getting. One of the early problems, therefore, was recruiting students who understood and believed in these goals.

Early planning documents suggested an eventual per student expenditure of 6000 shs. and an anticipated student fee of 1000 shs. Financial planning also called for central government support particularly for teacher salaries (Godfrey, 1973, p. 29).

A Netherlands church organization contributed some 6.7 mn. toward the projected 18 mn. shs. for capital construction. West German churches have also been actively supportive.

Ad Hordyk was made Principal and construction began. The first phase was completed in mid- 1973 consisting of 6 classrooms, 7 workshops, and 15 teacher homes. An administrative building, student hostels, and supporting structures were next added. A large coffee farm (100 acres) owned by the Institute contributes to the operating budget.

The school was opened September 14, 1973 with about 100 students - 50 each enrolled in a 3-year building craft program (carpentry, masonry, plumbing) and a 2-year secretarial course. Second year matriculations increased student totals to 240, and by July 1976, enrollment stood at 320. Courses in electrical installation were also introduced (NORAD/ UNESCO, 1976, p. 2).

EACE was set as the minimum entrance requirement. The 3-year course mentioned advanced students to Form IV level of secondary technical school, and the course work plus on-the-job training culmininated in an occupational rank between craftsman and technician. The secretarial course was planned as a second advanced year program (Godfrey, 1973, p. 29). Table 12 in Godfrey shows the planned enrollment in these two and additional courses, e.g., agriculture, engineering, accountancy, through 1976. Self-employment was mentioned as a desirable direction for graduates. Secretarial course students were first awarded certificates in 1975 and in building crafts in July 1976 (NORAD/UNESCO, appendix D, p. 2). The second groups completed these courses in 1977 with "excellent results " (NORAD/UNESCO, appendix C, p. 1). A teacher training and course development program in building construction was opened during the 1977-1978 year.

Visits - October 7, 1986 and January 15, 1987

The institute bulletin provided by the Principal, Wilson Muchemi, is one of the few up-to-date statements on any college. A more detailed review was therefore possible.

Kiambu Institute is located in Kiambu District about 15 km. from Nairobi. With the completion of phase III construction in 1976, the college was able to accommodate 550 students and 50 teachers. At present, the enrollment is 402, with 45 teachers, and 65 non-teaching personnel. All are boarders and 30 are fully supported by the Government. Only modest enrollment expansion is anticipated.

Having opened in September 1973, Kiambu was one of Kenya's first institutes to offer instruction. Construction progress was comparatively rapid, having been finished within 9 months. Most of the other institutes did not open until at least 1977. Government assistance was not authorized until 1976.

As in all others, the Board of Trustees is the owner and the official custodian. The Board is elected by acclamation. A board of governors appointed by the trustees is responsible for the continuing operation of the college under the direct leadership of a principal and deputy principal. The Kiambu Principal and the Murang'a Institute principal are elected and paid by the local board of trustees on approval of the Ministry, since these two first institutes are bound by early laws. In others, the principals are compensated through the government teacher commission. These situations are exceptions to the policy discussed in the Kaimosi (Friends) College writeup.

The current annual cost per student for tuition and boarding is about 18,000 shs. Students pay at the rate of 4,500 shs. or ¼ of the total cost of a year's education. The Government furnishes about 40% of that total including salaries of most of the teachers, a formula-driven amount per student, and a token sum for capital improvement. Other sources include overseas volunteer monies primarily from the Netherlands and West Germany.

Recurrent expenses have been successfully met through a 100-acre coffee farm that continues to be the financial backbone along with 3 other income generating units: (1) Carpentry Production Unit, a commercial venture manufacturing furniture and contracting for building site jobs. A management group runs the unit. On-the-job training is provided carpentry students. (2) Construction Firm, a registered company that undertakes medium size projects. The firm also provides job training and assists graduates who want to be self-employed by providing labor only contracts. The Board of Governors, through the Principal, manages the organization. (3) Appropriate Technology Production Unit, a new production group responsible for compiling information on appropriate technology and making items such as woodworking, jikos/stoves, solar heaters, hydraulic pumps, etc. Manufacturing is done by students. Through this production, the institute hopes to be more closely identified with rural people (Bulletin, March 1986, p. 6).

Four curriculums are currently offered at Kiambu: (1) building construction - craft I,II,III syllabi in carpentry, joinery, masonry/concreting, plumbing/ water supply - a 3-year course. Annual enrollment is about 60, 20 in each trade area, KCE division III with mathematics and physics or physical science passes are prerequisities. (2) Electrical engineering - including installation and consumer electronic products, service and maintenance - also a 3-year course having similar prerequisites. The television service component of this course, along with the Ramogi course (RIAT), is unique in the HIT system. (3) Secretarial - including the normal array of secretarial classes - a 2-year program begining in May. Annual enrollment is set at 54. Minimum qualifications are KCE division III and a credit pass in English or Lugha ya Kiswahili.

The 4th course, bakery technology, is new and unique in the Kenya institute system. Starting in January 1986 with 14 students, the course will produce competent bakers at the craft level. Graduates of the 2-year program should be able to operate traditional and semi-automatic bakeries.

A 5th curriculum - mathematics science and general studies - is a separate administrative department, but does not consist of separate courses. The subjects are taught in all other major curriculums except secretarial. This appears to be another unique feature of the Kiambu program, and along with the general studies courses at Rift Valley Institute, represents an attempt to incorporate more than technical education into the total curriculum. Student enrichment, again like Rift Valley, is provided through a rather full extra curricular activities program.

Characteristic of the institute system, Kiambu has no professionally-trained counselors/advisors. To take up this slack, the administration, including department heads, are heavily involved.

Most students apparently enter with a definite commitment to a particular course of study. They appear to know what they want. Only the secondary school failures would be classified as "second chance" students. Virtually no university drop outs apply for admission. Flexibility is allowed in career choice changes. Students can for good reason shift from one course to another.

The Principal is now engaged in a research effort to determine the employment of former graduates. Kerre (1985, p. 34) had reported the apparent lack of interest in conducting research throughout the system.

The college wants to develop a bio-medical assistants program. The Principal explained that medical equipment in hospitals is unused and in disrepair primarily because of the lack of trained technicians, both maintenance and repair personnel, and teachers. He spoke of the possibility of a multi-national training and exchange effort hopefully with American leadership.

Kiambu Institute of Technology is clearly one of the leaders of the system. Several "firsts" have been summarized above to attest to that position. The "feel" of the campus is positive and optimistic.

Materials: "Kiambu Institute Goes Marching On," Daily Nation, Saturday, March 15, 1986.

Kiambu Institute of Science and Technology (undated).

KIMATHI INSTITUTE OF TECHNOLOGY

Location:	P.O. Box 657 Nyeri
Telephone:	4005 Nyeri
Principal:	Mr. W.W. Gichuki

Plans to create an institute at Nyeri were announced in July 1971 with a funding target of 10mn. shs, but by May 1973, only 1.7 mn. had been collected. The leaders, it was suggested, were following a low profile policy (Godfrey, 1973, p. 30).

The original intention appeared to be to place admissions at the EACE level and offer 3-year courses to produce engineering technologists, technicians, nutritionists, and caterers. An initial 500 students were to be admitted as boarders with an eventual total set at 1000. Fees were to be as high as 2000 shs. The teacher/student ratio was set at 1:25.

First phase construction began in March 1974, and included an administrative block with 2 classrooms, library and offices, kitchen and dining room, 1 teacher's house and a covered walk between the block and dining hall. At that stage, plans called for courses in building construction and mechanics and electrial engineering as well as secretarial and account clerks courses, all at the skilled level (NORAD/UNESCO, appendix D, p. 4).

Unfortunately, the initial money was depleted and the project was delayed for several years. A renewal of interest coupled with the work of the 1976-1977 UNESCO team resulted in a 5-year development program.

Visit - October 29, 1986

Kimathi Institute is one of the more substantial schools in the HIT system both in terms of facilities, production units, and student body size. The campus is quite extensive with over 900 acres of coffee. The main 4-story building described above and the covered walkways connecting other single-story units add symmetry to the campus. The Principal's quarters, a fine home obtained from the original estate along with cultivated land is across Myahururu Road from the main campus facilities. Several acres behind the covered walkway are being cleared for more workshops and hostels.

Courses are offered in 2 broad areas: business studies and building construction. The former is the oldest department having both ACNC certificate (stages I and II)courses and the CPA(I). As in many other institutes, ACNC entrance requirements are division II "O" levels with English and mathematics credits, or one primary "A" level pass and any other 5 "O" level passes, ACNC (stages I and II) passes, or a first degree from a recognized university. Business studies students total 180.

Carpentry/joinery, masonry and blocklaying, and plumbing are the 3 courses in the building construction department. All 3-year courses lead to KNEC craft I and II examinations. Division III "O" level ratings and credits in mathematics and any science are entrance requirements. A 1-year masonry course is offered to division IV 'O" level subjects. About 100 students are enrolled in this department.

The student body totals 405, including 23 women. The institute employes 27 teachers. Student fees - 2500 shs. per year plus modest incidental charges - are standard. The 3-term schedule is observed throughout the system:

1. May - July
2. September - November
3. January - March

Materials: Information about KIT (no date).

KIRINYAGA TECHNICAL INSTITUTE

Location: P.O. Box 143 Keruguya
Telephone: 75 Keruguya
Principal: Mr. N. Kabanghi

The project to develop a technical institute at Gaithari near Keruguya was initiated by 2 senior civil servants, Mr. Mathenge and Mr. Kariithi. The plan was formally launched by Mr. D. Arap Moi, then Vice President of the Republic, in 1973. The total cost was 10 mn shs. of which 1.4 mn. had been realized by December 1972 (Abreu, 1982, p. 237).

The first phase construction began in June 1974. The primary purpose was to train young men for urban employment and local jobs. After a slowdown of several months, the building, including a hostel for about 100 students, were completed by the end of 1975. The institute opened early in 1977 with completion of the workshops.

Similar to others, Kirinyaga first admitted primary school leavers (EACE level). A few primary completers (CPE) were allowed to matriculate. The early curriculum was somewhat unusual, i.e., an academic segment designed to allow EACE level students to sit for basic scientific knowledge examinations after 2 years. Others (about 2/3 of the total) took technician level courses in mechanical, agricultural, and electrical engineering, and skilled level in joinery, building, technical drawing, electricity, mechanics, tailoring, design fashion and handicrafts, and music and drama (Godfrey, 1973, p. 30). Shorter courses in textiles were listed. It is apparent that planners envisaged a comparatively extensive curriculum. The best EACE students were allowed to enter technician courses. Time in technician classes was evenly split between classroom and workshop activities. The courses were designed to meet requirements of the London City and Guilds. Those primary leavers who filed to enter secondary school were offered simple classes in shoe making, tailoring, and agriculture. DANIDA furnished a project director and donated equipment for the building and textile department as well as 4 teachers (NORAD/ UNESCO, 1976, appendix D, p. 5).

Unlike most, Kirinyaga Institute was one of the few harambee colleges to open close to target expectations. By October 1977, students in building construction courses were engaged in job training, and those in garment manufacturing were making and selling clothing. A teacher training course in garment manufacturing was also proposed.

Visit - October 27, 1986

Kirinyaga now has 360 students in 2 curriculums: 240 in building services (Masonry, carpentry/joinery, plumbing and electrical installation) and 180 in the clothing department (design, drafting, grading cloth, fabric identification, and garment making). Student growth has not developed as anticipated. A brochure issued in March 1973 claimed a total of 500 would be reached by 1977 with additional craft and technician courses. It is quite likely that the original harambee effort saturated the giving ability of the population. According to the announcement, employed people had originally contributed 1/5 of a month's salary, and the self-employed, 20 shs. Every secondary student had contributed 2 shs. and businesses gave substantial amounts to start the institute.

The district is one of the smallest with a land area of 1,437 sq. km., and many adults work outside in larger towns. The town itself is only 95 km. from Nairobi and 50 km. from Thika which is growing rapidly. In terms of economic and social development, it is one of the leaders with a number of primary, secondary, and harambee schools, and a comparatively large hospital.

Although farming has been comparatively diversified, the land is still very underutilized. The agriculture courses, announced in the 1973 brochure, have not been implemented. Techniques to improve yields of small farms are particularly needed. Mt. Kenya water flowing through the district needs to be harnessed. In the words of the Principal: "People in this district worship the soil. Erosion of the fertile soil is a great concern of everyone."

Materials: Kirinyaga Technical Institute, 1973.

MERU COLLEGE OF TECHNOLOGY

Location: P.O. Box 972 Meru
Teleohone: 45 Kianjai
Principal: Mr. E. Njagi Karaya

The leading spokesman for Meru Institute was Mr. Muthomi, Personnel Officer for Shell B.P. He argued in 1969 that the community should develop a technological college to match other tribes. A target funding amount was set at 10 mn. shs. By February 1973, only 100,000 had been realized (Abreu, 1982, p. 237).

The Meru branch of the local government union workers agreed to donote 20% of February salaries to save the institution.

Little other information is available on the beginning of Meru College. The NORAD/UNESCO report indicates only that Meru (and Coast Institute) had been proposed but had not applied for registration (NORAD/UNESCO, 1976, p. 1). However, Godfrey (1973, p. 31) had reported that a 300 acre site had been selected at Neiru, and that while detailed curriculum planning was unknown, the initial proposal suggested forthcoming courses in agriculture, e.g., agricultural technology and economics, hydrology, crop and animal husbandry, dairy technology and veterinary subjects.

Visit - October 28, 1986

Meru College did not become reality until 1981. A harambee presided over by Daniel arap Moi, President of the Republic, reached 8 mn. shs. The college opened in July 1983 on an 8-acre rented tract with temporary structures to house about 100 students.

The present campus is a few km. beyond a new 630-acre site that is about 17 km. Northwest of Meru town. This very fertile land bordering the Kuuru forest - a part of Mount Kenya forest - had great potential for self-sufficiency. In time, the Principal envisions the development of a model farm. Fifty acres of mature coffee are now under cultivation. A coffee factory will be constructed when funds are available. Another 200 acres have been prepared to grow maize and beans.

Although the Principal has only been in office for 15 months, he had almost single handedly produced complete architectural drawings for the new campus. An engineer by training, he has prepared detailed specifications for a number of buildings. Phase I construction began in December 1985. Phase II is expected to start in July 1987. The present leased campus must be vacated by mid-1987. The estimated cost of phase II is between 19 and 20 mn. shs.

Meru, along with Sang'alo and UKAI, specializes in agriculture. About 80 students are enrolled in the 2-year program, and 20 more in a 3-year automotive repair course. The capacity of the first program is 100, and the second, 75. The new campus is expected to bring upwards to 500 students in approximately 6 courses by 1988. Two other courses were recently added: building construction and business studies (about 70 students each). The total student body is 240.

The greatest equipment need is for small machinery and hand tools - "nails not tractors," as the Principal put it.

The Principal commented on the difficulty experienced by new institutions that have followed the education revolution of the 1970s in Kenya. Raising funds has become increasingly hard. Donations must be found to supplement local efforts and government help. Production units, expanding throughout the system, are necessary to generate both recurrent and capital improvement monies. According to recurrent expenditure estimates, a sum of approximately 1 mn. shs. per year is required to operate one 3-year course, i.e., 1st, 2nd, and 3rd year students taking a single course. This graphically illustrates the importance of extramural funding in the Meru district and elsewhere.

Materials: Meru College of Technology: Project Proposal for KITA/ACCC (undated).

MOI INSTITUTE OF TECHNOLOGY

Location:	P.O. Box 184 Rongo
Telephone:	12 Rongo
Principal:	Mr. Otieno Onyango

No references were found in the early records, circa 1971-1976, to an institute contemplated or developing in the south-west region, Nyanza.

Visit - October 15, 1986

The Principal, Philip Odongo, discussed the history and current situation of Moi Institute using a document, A Profile, he had prepared.

Moi Institute, located just off the Kisii Migori highway in the highlands above Lake Victoria, South Nyanza district, was opened on May 5, 1983. Thirty students were initially enrolled in a 2-year business education course leading to CPA(I). Two days later a harambee was held with President Daniel arap Moi presiding.

Like other institutes, the Moi Board of Trustees is the sponsoring body, and the Board of Governors is the administraive unit headed by the Principal.

The main site is a 100 acre parcel. A much larger tract, 4000 acres at Macalder donated by the Nyago Government, contains some buildings. A large multi-story, multi-purpose building is nearing completion. Meanwhile, temporary units are being used for workshops, dormitories, staff housing, and the library.

The Institute has a total of 156 students and 19 lecturers. Four curriculums are currently offered: building technology, (a 1-year course including carpentry/joinery, masonry, plumbing, and electrical installations), agriculture (a 2-year course to training extension officers and rural area teachers), textile/ clothing technology (2-years), and business education (including stages I and I of the ACNC and stage I of CPA). Four other 2-year curriculums are planned: agriculture, forestry, fisheries, and energy and sugar technology. These varied additions, particularly forestry and energy and sugar technology, indicate that Moi Institute is attempting to serve the Lake Basin region in the rich agricultural areas indigenous to the locality.

The administration has established 2 development plans: a 1-year plan and a 5-year program. The first, aimed toward self-sufficiency of food for boarding students, includes a 10-acre plot of agricultural land to produce vegetables. The primary purpose of the 5-year plan is to improve the physical plant to allow expansion of the building technology courses from 1 to 3 years.

The teaching staff is hired through individual interviews with concurrence of the TSC. The Commission includes lecturers and the Principal.

Students pay only 3000 shs. annually against a total cost per enrollee of over 15,000 shs. Grants from the Government for the months of July and August 1983 averaged only 163 shs. per student. Harambee monies and donations from foreign donors are therefore required to sustain the Institute.

Materials: Moi Institute of Technology (MIT) A Profile. 10 October, 1983.

MURANG'A COLLEGE OF TECHNOLOGY

Location: P.O. Box 75 Murang'a
Telephone: 22906 Murang'a
Principal: Fr. J. Gitonga

The idea of a technological college for the Central province originated with the Murang'a people living in Nairobi in the early 1970s. B.M. Gecaga, British American Tobacco Co., S.W. Karanja, University Registrar, and J.M. Michuki, Kenya Commercial Bank were the primary organizers. As Abreu indicated, these men had visualized the importance of technical education for Kenya. They recognized that a gap was developing between professionals in the emerging technologies and untrained workers. They further noted the departure of Asian technicians. The high rate of certificate leaver unemployed had also become a serious national problem (Abreu, 1982, pp. 233-234).
The university system was continuing to graduate scientists and engineers - too many generals and too few sergeants.

At first, the committee envisaged a series of projects including a hospital and a water development plant, and established a Murang'a harambee development fund as a perpetual endowment for district or perhaps national purposes. They settled on the educational project when the Government announced intentions to initiate a water plant and other utilities in the Central province.

By July 1973, about ½ of the 10mn. shs. had been collected. The college to be constructed on a 5- acre site outside Murang'a was to be for all Kenyans recruited by the Ministry of Education from Form IV graduates with "O" level passes in English, mathematics, and a science (Abreu, 1982, p. 234).

Buildings completed as phase 1 in August 1974 were described as "spacious premises" (NORAD/UNESCO, appendix D., p. 2). These included an electric laboratory, mechanical workshop and a hostel for 40 students. But unlike Kiambu that had some early buildings, funding and planning lagged far behind (Godfrey, 1973, p. 30). DANIDA donated 1.3 mn. shs. toward the mechanical department, and from January 1975, provided a project director and a general administrator. Lilly Endowment Foundation contributed to the initial building program. The college opened in November 1975 with 30 students, 24 in mechanical engineering and 6 in carpentry. The EACE was the entrance minimum. Two subdivisions of commerce, home science, and business administration and an electric department were to be added in a year.

The 2 curriculums included both craft and technical training. Craft trainees began with a pre-entry course and then entered a City or Guilds course 833 or equivalent of 1½ years duration. Two options followed successful completion: transfer to a 3-year technician level course or continuing in mechanical, electrical or building specialization for another 1½ years. The former would enroll EACE and EEACE holders as well as transfers from the craft course. Technician specializations would include a variety of preparations including mechanical, electrical, building, and civil engineering as well as an ordinary engineering diploma and motor vehicle technician certificate. The latter - the continuing 1½ year course - would provide training in preparation for the examination for grade I trade test certificate (Godfrey, 1973, p. 30).

Graduates of both of these curriculums would join the industrial hierarchy at about the same level of under-foreman, but the technician would be able to advance after experience.

A NORAD-sponsored course in home economics and a teacher training curriculum development program was to be started in 1978.

Visit - October 27, 1986

The Principal, Fr. J. Gitonga, was one of the original group of Kenyans to agree in the early 1970s to help rural areas in training technicians, particularly those who had reached a dead end in educational opportunity. All agreed to raise 1 mn. shs. to begin an institute in Murang'a before searching for external money. Jomo Kenyatta laid the first stone in 1971. The campus was started in 1972, completed in 1974, and the college opened in 1975.

As mentioned in the preceding discussion, the 1976 UNESCO team described the campus as "spacious premises." That description of comparative commodiousness and attractiveness is realistic. International aid has been important in construction and equipment. The 1975-1982 development report lists grants from DANIDA, NORAD, CAFOD (English catholic organization), MISERECX (German catholic bishops), Dutch Embassy, German Embassy and Government, British Council, and Swedish and Canadian Embassies. The total amount has been an impressive 18,886,121 shs.

The Murang'a Institute campus is probably the most spacious in the system. Although not a large area, the facilities are qualitatively excellent. Buildings are arranged symetrically, suggesting careful planning.

The college enrolled 400 students in 7 programs for the fall 1986 term; mechanical, electrical, and water engineering, motor vehicle repair, business, home science and textiles, carpentry, masonry, and plumbing. Craft and technician courses run concurrently, 2 and 3-years duration.

The original intention was to absorb all secondary school leavers not admitted to other government institutions. Financial constraints have forced abandonment of the plan. The Principal mentioned that 100 secondary schools in the district annually produce between 5 and 6000 "O" level graduates. About 30% with high marks (divisions I and II) go on to higher institutions, leaving some 70% mostly division IV and Z (failure) who have no further opportunities. As the budget allows, the college has been admitting division IV graduates of the 70% in motor vehicle, masonry and carpentry for 1½-year courses in preparation for the grade 3 government-sponsored trade tests. Some government money is involved in the shortened workshops. He further explained that the village polytechnics take standard 8-year primary school graduates, but those finishing 4 more years with poor records can only be served by the "second chance" harambee institutions.

The estimated cost per student per annum is 20,000 shs. Fees are 2000 per annum, and the government's quota is a mere 2800. The remainder must be the institute's responsibility. Meeting this difference continues to be very difficult for Murang'a and all others, as well.

Materials: Murang'a College of Technology (undated).
Murang'a Harambee Development Fund (undated).
Murang'a College of Technology: Development Report, 1975-1982.

RAMOGI INSTITUTE OF ADVANCED TECHNOLOGY

Location:	P.O. Box 1738 Kisumu
Telephone:	44 Nyamgori
Principal:	Mr. W.O. Ayoki

Ramogi Institute is situated a few miles north of Kisumu overlooking the town and Lake Victoria. A library, comparatively large, and a 3-story administrative unit were the originals constructed late in 1973. By February of that year, 3 mn. shs. of an estimated first phase construction cost (1974-1977) of 20 mn. shs. had been collected, ranking Ramogi as the most extensive and expensive of the early institutes.

Institute planners wanted university status. An institution of higher learning had been contemplated since the late 1950s. Various groups in Luoland continued to discuss the matter, and in May 1971 a committee of 9 from the Luo Union of East Africa recommended the establishment of a vocational training institute in Nyanza. After 5 years of lengthy discussions, a task force representing the union, members of Parliament, and other groups recommended creation of RIAT near Kisumu (Abreu, 1982, p. 238).

The announcement was made on December 5, 1971 in Nairobi and a second ceremony was held in Kisumu on January 2, 1972. Construction of the 206 acre campus began in August.

Money problems further delayed the completion of the initial buildings.

Ramogi opened with a pilot program and a small group in 1976. EACE passes were assigned a 3-year course leading to an apprenticeship qualification at the technician level. EAACE holders were offered a 3 to 5-year course leading to professional registerable qualifications. The best of the technician candidates were also allowed to take one of the several intensive curriculums (Godfrey, 1973, p. 32).

The published offerings were very extensive. However, only building technology and mechanical engineering were initially available. A wide variety of courses were announced but not provided in environmental and agricultural sciences, social sciences, and general studies. Kisumu Training Centre was suggested as a possible location, and reference was also made to a separate teacher training program for the institute's teachers NORAD /UNESCO, 1976, p. 3). The institute planning document showed an estimated 2 mn. shs. expenditure for the first 300 students, and 10 mn. shs. for an enrollment of 1000 or more. Fees supporting such a budget were placed at 20,000 shs. per student per annum. This, it was suggested, could start an eventual endowment fund of some 60 mn. shs. to yield an annual institutional income of about 400,000shs. The planners were hoping for central government assistance (Godfrey, 1973, p. 32-3).

Fund raising did not keep pace with the initial successes and some student unrest resulted in the first year. Unfortunately, only 1 mn. of the 5 mn. shs. pledged materialized by 1975.

Administrative reorganization occurring during the early months of 1977 presumably improved the situation.

Visit - October 15, 1986

The Principal, Winston O. Ayoki, has had extensive experience in the United States, having graduated from Northwestern College (Iowa) and completed an M.A. at Fordham University. He was employed part-time at the City University of New York as the assistant peace corps director for Kenya, and help set up programs in several American cities similar to the New York City Street Academy Program for delinquents. This project is continuing at Staten Island Community College.

Through Ayoki's efforts, RIAT has established a linkage with Virginia Western Community College in Roanoke, and several RIAT students are now studying there. The President, Charles L. Downs, visited RIAT in September 1985. Other exchanges are contemplated.

RIAT has 525 students. Some are on-job training and about 400 are housed on campus. The major building, a 3-story facility, houses administrative offices, library, and classrooms. The site is about 8 miles from Kisumu, and offers a panoramic view of the Kano plains, Nandi hills, Homa hills, and Lake Victoria.
A large hostel is nearing completion at the highest point over-

looking the town and Lake Victoria.

Three curriculums are offered. Building technology is comprised of 3 sets of courses all at the craft certificate level. Business studies contains several 1-year sections at the ACNC and CPA levels, including a copy-typist class and 2 shorthand/typist classes of 2-years duration. A 1-year class in transport management is a part of that curriculum. Three 2-year courses make up the engineering technology curriculum. These are electrical installation, radio and TV servicing, and motor vehicle mechanics, all at the craft certificate level. RIAT and Kiambu are the only institutes offering radio and TV servicing.

Mr. Ayoki indicated that marine engineering/fish technology was badly needed. Boats are still being constructed traditionally by the Nilelatics who settled the area generations ago - Luo people who migrated from the Sudan. There is no reliable lake transport. Fish processing is also underdeveloped. The institute, he felt, should take leadership. Sugar technology is another program where an organized training effort is needed in the Kisumu area.

Materials: Ramogi Institute of Advanced
Technology: Outline of Courses Offered,
1986-1987 Academic Year.

RIFT VALLEY INSTITUTE OF SCIENCE AND TECHNOLOGY

Location: P.O. Box 7182 Nakuru
Telephone: 43398 Nakuru
Principal: Dr. K. R. Koech

Three harambee schools were envisaged for Rift Valley Province. Maa Technical School was the first scheduled to open January 1973 in temporary quarters given by the central government in Kajiado township. The 80 primary school leavers were to be assigned courses up to 3 years in carpentry, farming, and other technical subjects. A budget of 1 mn. shs. was announced. The second, Kalenjin Institute of Advanced Technology was proposed for the town of Kericho, some 100 km. due west of Nakumu (Godfrey, 1973, p. 33). Neither materialized, but a third, Rift Valley Institute of Science and Technology, became one of the best known of Kenya's postsecondary colleges. Located near Nakuru, institute planning was initiated in 1972 by Daniel arap Moi, President of the Republic, when Vice-President of Kenya.

At the time of the first planning meeting, 1½ mn. shs. had been raised of the 6 mn. goal. All school leavers and completers were to be admitted. Like Ramogi, an extensive series of curriculums was announced, including hotel management, crafts and cottage industries, and public health. During the funding campaign, the Vice-President often referred to the importance of training people with simple skills - workers who could build houses and repair motors. A 2700 acre cattle farm was purchased to strengthen the financing of the new institute (Godfrey, 1973, p. 33).

University college status was a recurring long-range purpose. This theme, so frequently noted in countries around the world grappling with educational access and application, was persistent in Kenya. Fear that practical training is second class education despite the obvious and crucial need, fuels the ambition to "graduate" to university classification.

While this goal has remained a constant threat to continued concentration on intermediate and semiprofessional education, there is considerable evidence to suggest that the priority purpose remains to close the void created by overemphasis on academic education by strengthening technical training as well as skill training for immediate employment.

This emphasis was strongly urged by Eldon Johnson and Maxwell King who visited Rift Valley Institute in late March 1978. Their visit was sponsored by the Overseas Liaison Committee of the American Council on Education. The on-site study received support from the Division of Education and Cultural Affairs of the International Communication Agency. Johnson and King also referred to the need for "second chance" opportunities, particularly for those living in rural areas who could not qualify for the university, remaining unemployed after attending or graduating from primary (Form IV) school (Johnson and King, 1978, p. 6).

The authors reported a reticence to give vigorous and conclusive support to technical education. A report on national educational objectives and policies released by the Government the year before their visit was not made available to them. While recommendations of the report could only be inferred, the authors concluded after a final meeting with Vice-President Moi and a high official of the Ministry of Education that the

Policy report did support the major institutional objective (Ibid. p. 7). The Johnson/King report includes background material, current status of the college, a preliminary on-site report, a summary of internal problems, professional linkages in the United States, and funding prospects. The on-site report, together with the cover letter, is addressed to the chair of the Board of Trustees, Daniel arap Moi. A working paper prepared by the institute faculty gives an excellent introductory outline of the harambee movement, the executive structure of Rift Valley Institute, progress toward construction of the campus, objectives, and other material presented in outline form, i.e., assistance for the institutions and the role of the government in the harambee institute movement. A fourth attachment, to the Johnson/King report depicts the framework of the Kenya Ministry of Education in the 1970s.

Information immediately following is drawn from sections of the Johnson/King general report, on-site report, and the faculty's working paper. This commentary should provide an accurate account of the situation in 1978. The preliminary curriculum was identified in the first paragraph of this institute report.

Professional and Academic Leadership

Advice in identifying a desirable administrative structure and an appropriate curriculum was the first request of the Vice-President, Daniel Moi. The Institute apparently had been without professional and academic leadership for the entire 7-year planning period. Johnson and King were informed that a search for a principal had been initated. The investigators urged a prompt choice of a leader be made, and that an inside group, educators viz. an external group like themselves should begin immediate curriculum planning ". . . something distinctive should be considered . . . something community-connected, something beyond the conventional. . ." (Johnson/King, 1978, p. 10). They further called attention to the need for adult and non-formal education. They warned against the temptation to offer transfer programs - opportunity to earn credits applicable toward university degrees. This, they correctly assessed, would be contrary to the institution's stated mission (Ibid. p. 11).

The present author, a decade earlier in Sir Lanka, encountered similar pressure from planners of one of the first short-cycle systems for a third world nation to provide immediate opportunities for university transfer. The name of the system chosen in advance of the author's visit 1968-1969: "Junior University Colleges," suggested the intention to be stepping stones. As a point of fact, the Sri Lankan schools opened with skill and technical emphases, but were unfortunately closed after 2 years following the initial graduating class, as a result of a change in the national government (see Kintzer, 1970). Technical training, adult and continuing education, and service to the local community are indeed the primary objectives of short-cycle institutions.

Professional Links

The second request for help was for professional assistance from the United States. To this request, Johnson and King responded with enthusiasm suggesting that the organization, Community College Cooperative for International Development, be contacted for possible professional consultation and other types of mutual benefits, i.e., faculty exchanges, administrator/ staff training. They specifically recommended that the Principal be sent to the United States for observation and first line experiences, and expressed confidence that funding could be provided (Ibid. p. 13).

Financing

Vice-President Moi also asked about outside funding possibilities. The visitors made several suggestions, advising that the institute prospectus be updated to include its distinct potentials and funding relationship with the Government and community.

During this early period, the institutes, including Rift Valley, remained financially vulnerable. Per student costs were high (about 1600 shs. annually), and there were no local provisions. The schools had to depend on fund drives, external donations, and what profits were realized from farms and other enterprises. The Rift Valley Institute dairy farm of about 1000 Friesian cattle could only cover the education of 5 students. It was obvious that the Ministry of Education should improve government funding if the schools were to survive. But institute leaders feared restrictions and interventions inevitably resulting from such support. Development of balanced funding patterns appeared to be crucially important despite the fact that central control - "ownership" by fiscal dominance is antithetical to the harambee policy of self help and local independence.

Faculty Working Paper

Institutional purposes as stated in the faculty document are typical of those associated with short-cycle colleges. The first 3 listed below point to the desired curriculum. These concentrate on preparation for work up to and including technical or semi-professional employment. No mention is made of studies leading to university degrees. Continuing or recurrent non-degree, non-certificate classes and activities are not included. The fourth purpose, dealing with counseling/advising is not as yet well-handled:

> **(a) Students would acquire specific skills required by industry.**
>
> **(b) Students would acquire specific skills and knowledge required for a craftsman to establish his own business and become self-employed, presumably in the rural or any other applicable environment.**
>
> **(c) Students would acquire specific skills and the theoretical background needed to be technicians and in addition be able to proceed with further technical training.**
>
> **(d) The Institute would aid in advising graduates how to establish jobs, to help them search for jobs and other counselling areas.** (Rift Valley Institute of Science and Technology: A Working Paper, April 1978, p. 5).

The faculty reiterated the value of identifying and creating an appropriate administrative structure, and developing external relationships particularly with the United States for funding potentials and training sites. They complimented the Government for creating the Coordinating Committee on Harambee Institutes of Technology, and noted that membership was drawn from the institutes, themselves. References was made to the establishment of a coordinating unit in the Ministry of Education that would act as a direct institutional link with the Ministry. They further acknowledged 2 other government programs; grant-in-aid based on enrollment and assistance in finding teachers (Ibid. p. 5).

Visit - October 10, 1986

The preceding background and development statement provides insights on Rift Valley Institute. The following synopsis of a visit is taken from materials supplied by the Deputy Principal Samson Ngoli, and subsequent conversations with the Principal, Dr. Kipngeno R. Koech.

Dr. Koech spent a number of years in the United States prior to 1978 for advanced education. He holds the doctorate in Psychology and Education from Indiana University. The deputy principal was trained in engineering in the United Kingdom, and the dean of students, Miss Tecla Chemabwar (one of the few deans of students in the institute system) has an American degree in psychology and physical education.

The institute is located on a plateau overlooking Lake Nakuru a few km. north of Nakuru town. An acreage of 7700 was acquired through the self-help process; 2700 acres of excellent farmland and 5000 acres obtained from Deloraine Estates. The farm has made the institute self-sufficient in most products to sustain the hostels for some 1000 students and a few of the 100 faculty and staff.

The total student body numbers about 1100. The college serves 13 districts within Rift Valley Province, the largest in Kenya. Nearly every ethnic group is represented, the majority being the Nilo-Hamitic people.

Many more admission applications are received than can be accommodated - 1200 annually of which about ½ are qualified. Not more than 400 can be accepted (Kerre, 1985, p. 35). "Acceptance" is defined as EACE/KCE passes, division III or above with good qualifications in English and mathematics. Rift Valley has been operating 2 shifts to maximize facilities. This tight situation clearly indicates that a second institute is needed in the province. The Ministry has recently announced the establishment of another institute at Baringo north of Nakuru town.

An unusual addition to the list of purposes released by other institutes appeared in a message from the Principal in 1974:

> We aim to teach the whole person, by preparing students to meet professional qualifications as well as teaching them to survive in the environment (Koech, 1984, p. 1).

This philosophy is translated into operational policy at Rift Valley. All students are required to take courses in the commercial department to acquire business skills. This was reported by Kerre (p.35) and verified by the present author.

Five educational departments offer courses: commerce, textiles, agricultural mechanical engineering, building, and water technology. Specifications are very similar to other institutes:

Commerce

The commerce department was opened in 1981, and maintains 2 sections, accounts and secretarial. In the first, direct entry is offered for CPA(I) and ACNC(I & II), and in the second section, both Kenya National Examination Council and Pitman are offered normally as 2-year courses. The department has over 15 full-time lecturers.

Textiles

Courses are 3 year in duration and divided into crafts I, II, III. Some graduates are employed by the production unit of the college.

Agricultural Mechanical Engineering

These are also 3-year classes at all 3 craft levels. Fifteen lecturers are in the department. Women are enrolled in these male-dominated fields.

Building

Four fields are represented: carpentry, plumbing, masonry, and electrical installation. All are at the craft level and are 3-year courses. Upon completion, students are technically eligible to apply for an "O" level diploma at one of the polytechnics, or to be hired as secondary school technical teachers.

Water

This newly organized course was first recruited in May 1985. The 3-year classes are designed to train water maintenance technicians. The institute training emphasis is on maintenance and operation. Design is the emphasis of the polytechnics. Rift Valley is hoping to specialize in agriculture, engineering technology, and water technology.

Each department is developing its own income-generating units. Annual sales of all production commodities is over 4mn. shs. with a net profit of about 800,000 shs.

A note about examinations: Students sit annually for most examinations prepared by a national examining board or a private agency, depending on certification. Faculty may be asked to teach toward the examinations. Grades are often given daily and usually count for 40% of the final result. The practical attachment, e.g., part-time employment and the course content, counts for about 60% on the final examination. The examinations are externally read. The institutes would like to conduct their own testing. A change is being considered with the developing 8-4-4 plan.

Students entering with minimal requirements obviously disrupt this rather rigid system, and present problems in curriculum development. The communities would like to admit all who might profit regardless of formal qualifications. On the other hand, the Ministry urges certificate-level admissions. Although the institutes in general, are increasingly thought of as "middle colleges," e.g., higher college polytechnics and secondary schools but less academic than national polytechnics, they still are obliged to help the unqualified.

In addition to the standard government support formula, Rift Valley has had support from DANIDA, CIDA, United Arab Emirates, USAID, and is now promised major UNDP funding. Industry appears to be lagging in supporting the institutional mission.

A new and rather imposing series of building is nearing completion, including an administrative block, technical workshops, and an academic center. The institute offers a comprehensive sports program, and sponsors a number of intermural activities and student clubs.

Materials: The Rift Valley Institute of Science and Technology (The Development Trust) undated.

Letter from the Principal, 1984.
A 5-page synopsis (undated).
The Institute's Mirror, March 1980.

SANG'ALO INSTITUTE OF SCIENCE AND TECHNOLOGY

Location:	P.O. Box 158 Bungoma
Telephone:	7 Bungoma
Principal:	Mr. Wafulo Buteyo

Sang'alo Institute is one of 3 located in Kenya's Western Province. The others, Kaimosi and Western, are reviewed in separate sections.

Development of the Sang'alo campus was closely tied to the announcement of a rival community, Kakamega, intending to open the Western College of Arts and Applied Science (WECO). Reacting to the WECO prospectus to include a campus in Bungoma, citizens of Bungoma hastened plans for their own institute. Within a year after the January 1972 WECO announcement, Bungoma leaders had raised some 2 mn. shs. of an estimated 5 mn. An additional million was promised annually by the county council from assessments against maize and coffee producers (Abreu, 1982, p. 241). Block Hotels and the Bamburi Cement Factory were prominent donors.

The campus was to be initially located in existing facilities on a Bungoma 1000-acre veterinary farm. Veterinary science was to be the primary subject designed for primary school leavers, along with such skilled courses as masonry, plumbing and woodwork, and advanced technology for secondary school leavers, i,e., agriculture and technology, forest and paper technology, printing and lithography, and sugar science and technology. Opening was scheduled for mid-1973 (Godfrey, 1973, p. 34).

Sang'alo animal husbandry research station was slated to be transferred to the institute in July 1976. This included an additional 540 acres with building and machinery. Planners also asked the Netherlands Volunteer Organization for an executive manager (NORAD/UNESCO, 1976, appendix D, p. 5).

A course in agriculture was offered first in September 1977 (Ibid. appendix C, p. 2). Because of the extensive farm and existing buildings, Sang'alo Institute was at that time in a strong financial position.

Visit - October 14, 1986

Hosts for the visit were Frances Saiah, Deputy Principal and Yahwoma Moses, department chair. A visit with the Principal had been previously arranged in Nairobi.

The 550-acre campus was inherited from the Minstry of Livestock in September 1977. At that time, the Ministry reverted the ariable land to the Bungoma County Council on a lease basis for a 3-year diploma course in agriculture. However, a 3-year certificate curriculum was announced following the disallowance of the diploma course. This offering continued until September 1986 when the program was reduced to 2 years in keeping with the forthcoming 8-4-4 plan.

Recent modifications include a 6-course instead of a 7-course sequence with an option of English or home economics in the general agriculture certificate program.

Sang'alo has an enrollment of 203 with a teaching staff of 20. The student body includes 10 women. Diversification of the carpentry, masonry, and auto mechanics courses could bring in another 200. The number of faculty is well below the need. The additional offerings would require 50 to 60 teachers. The Institute is the only postsecondary certificate training college in the Bungoma district. It appears to be strategically located and much needed despite lagging support.

The campus supports a dairy herd and produces a variety of cash crops providing training in practical skills. Shortages of facilities is the most apparent limitation. The improvised hostel and classrooms satisfactorily accommodate not more than 180 students.

A new program managed by students has recently been introduced - "zero grazing." The 37 acres include plots for vegatable growing. The program is being planned as 80% practice and 20% theory. Food production techniques are emphasized. Short agriculture courses are also to be started for less-than-certificated students whom the Ministry is allowing to enter for 2 or 3 months of practical training.

Despite the comment in the 1976 NORAD/UNESCO report indicating the institution's strong financial position, the present condition is considered weak (Memorandum, 18 December 1985). The college remains dependent on the Government for teachers through the Ministries of Education, Science, and Technology, and Agriculture and Livestock Development. The above-cited memorandum contains a list of 12 physical facilties presently required. The estimated construction cost is shown as 39 mn. shs.

The administration is now concentrating on the institute's development requirements, endeavoring to create a self-reliant economic base.

Materials: Memorandum, 18 December 1985.

UKAMBA AGRICULTURAL INSTITUTE

Location:	P.O. Box 30627 Nairobi
Telephone:	27228 Nairobi
Principal:	Isaac Muinde

Ukamba Agricultural Institute (UKAI) at Yatta between Machakos and Kitui is one of two institutes on the western edge of the Eastern Province. An office has been maintained in Nairobi as the Yatta campus is being developed.

Although plans for a technical institute were announced in 1966 by the New Akumba Union, accounts of the early development are sketchy. As Godfrey reported, progress of fund raising toward the 30 mn. shs. goal "has lain sadly dormant Godfrey, 1973, p. 31).

A few facts are available in Abreu's book. A committee of university Kamba academics, civil servants, and businessmen was formed in the late 1960s to work on education, but the group favored a water project. The idea of building a college persisted in the region, and was actively pursued when the leaders were convinced that the Government would deal with the water problem (Godfrey and Mutiso, in Court and Ghai, 1974, p.257). A site was subsequently selected 40 km. from Kitui town.

Agriculture was a priority subject. Since the entire area, Ukambani, borders on the dry region of the East, improvement of agricultural techniques were essential. Curriculums would include farm machinery, soil and water engineering, irrigation and hydrology, meteorological studies, and related rural industries. Students were to be drawn from groups of Form IV (primary school) and Form VI (secondary school) leavers and completers.

The next chronology from the NORAD/UNESCO report indicated that the UNESCO team "are now busily engaged in drawing up a programme for such [financial] assistance" (NORAD/UNESCO, 1976, appendix C, P. 2). The executive officer of the institute at that time was a Peace Corp volunteer from the United States. He was, presumably, responsible for planning and implementing the college.

Visit - November 18, 1986

Our arrival at the Yatta campus was most fortitious. Members of the governing board, the administrative officer from the Ministry, and the chair of the institute system executives organization were just completing a strategy meeting with the Principal. Water supply was the major concern, as well as the best use of the extended campus in crop and livestock production. A lecturer in agriculture from the CIDA project was also present.

The Yatta campus is very extensive - 10,000 acreas bordering the Mivita Syano river. The Emali campus is 100 km. south of Machakos - 4500 acres of undeveloped land. Since both are apparently well-suited for dry land farming, the curriculum should remain substantially agricultural. On a long term basis, the governing council hopes to have beef cattle, sheep, goats, and citrus farming of commercial quality.

UKAI appears to have great potential, e.g., ample land for livestock and a variety of dry land crops, expert advisors from CIDA, and an energetic new principal having been appointed in July 1986. The Emali land is used entirely for farming (maize and beans). The Yatta campus is already self-sufficient in some food crops - tomatoes and onions. Tobacco and barley are being studied as future production crops.

According to the Principal, the first class of 17 men graduated with 2-year certificates in general agriculture and all passed the KNEC trade test on dry land farming. Some are employed as secondary teachers. These and future graduates are likely to suplement the number trained at the agriculture training college near Nakuru town that is presently unable to supply sufficient teachers and agriculture officers. A class of 27 men was admitted in September 1985 and another 27 last September. The total student population stands at 54. The Principal is hoping for a class of 30 men next September (1987) along with an equal number of women. This depends on obtaining another hostel.

Housing for the CIDA lecturers and the Principal are quite substantial. These homes, built by CIDA, will eventually be turned over to the governing board.

To date, about 6 mn. shs. have been invested in land and facilities, mostly through harambee activities organized by the governing council of 50 local citizens. Similar to other institutes, the UKAI Governing Council has a constituted board of trustee, committees, and the Board of Governors which has ownership responsibilities. The Board appoints the Principal.

The first phase initially estimated to cost about 16 mn. shs. in 1979, has been partially implemented. The number of students anticipated at the completion of phase III in 1992 is 488. A technicians class of 16 may be initiated to bring enrollment to 500.

Courses in building construction are now being planned to add to the general agricultural certificate program. UKAI is destined to be best known for dry land agriculture. Satisfactory water supply continues to be the most pressing problem.

Materials: Ukamba Agricultural Institute (UKAI): Information Documents (undated).

WESTERN COLLEGE OF ARTS AND APPLIED SCIENCE

Location:	P.O. Box Kakamega
Telephone:	20455 Kakamega
Principal:	Mr. Mark C. Ligaga

The announcement of the creation of WECO was made January 1972. The institute was to be built at three sites: Kakamega where the administration and engineering and business programs would be housed, at Bungoma which would sponsor agricultural and veterinary science, and Busia where medicine and nutritional sciences would be taught. By July 1972, 1 mn. shs. had been raised toward the 20 mn. estimated need, and the first campus at Kakamega was under construction early in 1973 on a 100-acre site given by the municipal council. The hexagonal buildings (so constructed to facilitate expansion) were to accommodate at least 500 students by 1976-1977 (Abreu, 1982, p. 240 and Godfrey, 1973, p. 34).

The initial programs were drawn up in considerable detail: a 3-year higher technician course for 120 in engineering, i.e., general mechanical and motor vehicle maintenance, general electrical and electronics, agricultural and water technology, forest products engineering, building production and manufacturing, and the semi-professional business course, i.e., accounting, financing, insurance, and management. The business course was to enroll 48. Only EACE holders would be admitted to these classes beginning October 1974. Craft and lower technician courses would be offered to non-residents by extension or taken part-time. The initial cost per student was estimated at 10,000 shs. The planners hoped that WECO would become a constituent college of the University of Nairobi.

The Kakamega campus was to have been completed by July 1975, but construction was slowed because of lagging financing. In May 1976 only 2 maisonettes for senior lecturers were completed and classroom buildings and hostels were without plumbing. The 6 teacher homes were not ready. Late 1976 was the earliest feasible opening date. The UNESCO team considered it advisable ". . .to consolidate the present work before embarking on expansion" (NORAD/UNESCO Report, appendix C, October 1977, p. 1).

The master plan (1973 perceived the college developing in 3 stages: (1) engineering and business at Kakamega, (2) agriculture and veterinary medicine at Bungoma, and (3) medical technology and nutrition at Busia. These did not materialize. Sang'alo Institute was opened at Bungoma in 1977. An institute is now being planned for the community of Busia. While the population density of the region may justify another harambee institute, the financial condition is probably not strong enough.

Both WECO and Sang'alo are hard pressed. A third institute would hardly be warranted.

Visits - October 14 and December 31, 1986

In June 1985, a report entitled: A Guide for Decision Making, was submitted to the Kakamega District Development Committee by the Principal, Mark C. Ligaga. The detailed statement on the status of the college was requested by the committee in the process of ". . .rehabilitating WECOs name in the eyes of the public and ultimately unbolt the doors for a near-future fund raising. . ." (Introduction, p. 1). In this very thoughtful document, the Principal presented a factual perspective on the situation. The Institute had gone through financial difficulties and was nearing closure.

As indicated earlier, the college was opened in 1977 after a 5-year delay in construction. Mechanical engineering crafts courses were first, and business studies were added in 1979. At present, 197 students are enrolled in 3 main programs: those named above plus water technology. Both mechanical engineering and business enroll "O" level students. The water program is 3 months in duration for pre-service students.

WECO is 1 of 3 institutes offering water technology sponsored by CIDA. The college has designed and now manufactures and markets hand pumps for deep and shallow wells, irrigation pumps, cement block making machines, and brick making machines. The pumps are sold to local customers and exported to Uganda, Tanzania, and Zaire (Kerre, 1985, p. 37). The Ministry of Water

Development sponsors students and also provides teachers. Up to December 1984, 306 students had completed the course (Ligaga, 1985, p. 13). A foundry would permit the casting of cylinders for the pumps produced at the college.

WECO is very protective of its water engineering graduates. Those in the class not absorbed in industry are offered 6 months work in the production unit to maintain skills. Students are encouraged to buy tools with the modest salary provided for the purpose of opening their own businesses.

A large hostel is maintained for over 200 residents. A dormitory for women is one of the priority needs of the district.

A recently-acquired computer has improved the financial system. Instant accounting is now provided all departments. Emphasis is now placed on projections rather than corrections. The DANIDA-sponsored computer system is probably the most important asset in WECO's rehabilitation program. A course in computer management is visualized with an opening class of about 24. The WECO computer is the only one in the entire HIT system.

Financial solvency continues to be the greatest concern despite the successes of the Principal, faculty, and staff. Most of the student fees (about 4200 shs. per year) are spent on boarding costs. The rate is approximately 11 shs. per student per day. Income from the production units, i.e., the college farm and water pumps, is improving. The system of financial control introduced by the Principal should prove to be very advantageous as the institute struggles to regain strength and stability.

Materials: A Guide for Decision making, June 1985.
"Focus on Kakamega District." The Standard, August 26, 1986.

PART II - SECTION 4

COMPARISONS WITH OTHER SHORT-CYCLE SYSTEMS

In a 1984 publication, the author presented a series of characteristics commonly found among short-cycle institutions and systems that distinguishes these from other post-compulsory/post-secondary schools (Kintzer, op. cit., 1984). For purposes of comparison and for further identification of the Kenya Harambee Institutes of Technology, each of these qualities will be listed and briefly discussed. Obviously, some are more universally found than others, and exist in varying degrees within and among institutions and systems. It is also well to remember that the features identified are not exclusively short-cycle. Virtually all are present but to a lesser degree of emphasis throughout secondary and higher education.

1. A compulsory school completion certificate is, generally, but not exclusively, the basic entrance requirement.

The primary second school certificate was and continues to be the basic entrance requirement for most HIT programs. The EACE (now the KCE, still predominates for beginning courses, and the EAACE or CPE (abandoned in 1984) for more advanced work. Credit in mathematics, English, and approved sciences are often specifically identified. In recent years, school leavers (dropouts) and certificate failures have been admitted to restricted programs on the urging of communities, and with cordial support, if not some compensation, from the National Government. This situation is likely to intensify under the 8-4-4 plan with increasing determination to universalize further education.

The normal flow of students from compulsory (basic) to advanced education has been disrupted in many countries. Remediation and compensatory education have been relegated or formally assigned to short-cycle institutions. The same phenomenon is happening in Kenya.

2. Short-cycle institutions do not offer long-cycle (university) degree work, except in the United States, Canada, and a few other nations.

This is specifically the case in the Kenya HITs. Elsewhere in the countries names, and to a lesser extent in Norway and New Zealand, academic curriculums, if available, are restricted to one-half or less of the first university degree.

3. Short-cycle institutions concentrate on technical education from craft levels through semi-professional diplomas.

In most settings including Kenya, short-cycle institutions, no matter what they are called, concentrate on technical courses at the certificate and diploma levels. Courses often involve linkages with industry, and general studies are given minimal attention except in the United States and Canada where general studies may be required in so-called comprehensive programming for associate degrees.

4. Adult continuing or recurrent education and the responsibility for facilitating community educational activities are increasingly included on the list of goals of short-cycle colleges.

Adult education and community activities are beginning to be recognized by the Kenya HITs.

5. Program relevancy is extremely important in all short-cycle institutions.

Institutions at all levels in Kenya and in many nations on all continents are being pressured to tighten the relationship between classroom, laboratory/workshop studies and the actual job place. This relationship is of extreme importance for short-cycle college acceptance and survival, in some settings.

6. Practitioner non-degree professionals are often engaged as teachers on part-time assignments.

The practitioner orientation dominates short-cycle education. Professional competence is the prerequisite rather than academic qualifications. Lack of teaching competency is sometimes a liability. The TAFE system (Technical and Further Education) in New South Wales, Australia, is an example. However, the Harambee Institutes hire only a few part-time teachers. Most are full-time employees.

7. Instruction is emphasized, rather than research.

Unlike university faculties whose distinction is primarily based on research and publication success, short-cycle college instructors are invariably promoted on strength of teaching success. The need for R & D activity - institutional-type research - is recognized. The HIT system is clearly an example of this point. R & D is badly needed.

8. Student fees and other charges are minimal.

This is also the situation in Kenya. Student tuition varies, but the average is about 4500 shs. per year - approximately 1/4 of the annual cost per student. Financial support from national governments varies enormously. The Kenya Government support is approximately 40% of the HIT operational budgets.

9. Short-cycle systems have strong regional and local ties.

While frequently under direct supervision, if not control, of the central government, short-cycle institutions are invariably allied in practice and service and often in ownership, governance, and administration with regional and local authority. This is clearly the situation in Kenya. As a consequence, the schools are much more individualistic than universities. "The People's College" is a popular reference wherever found.

Short-cycle colleges often become vehicles for personal ambitions as they gather strength and reputation beyond the local district. In fact, some of the harambee institutes are strategic organizations for determining local and regional political leadership. While the "stepping stone" feature for both board members and executives serves to attract higher quality individuals, and encourages district and provincial governments in fund raising harambees, this characteristic can also be detrimental. Short-cycle institutions which become too political tend to have difficulty in attracting international funders, and also in developing long range planning. (Godfrey and Mutiso, op. cit., 1974, offer an interesting commentary on the politicizing of the harambee institutes).

10. Operational policy and day-to-day decision making tend to be decentralized often with strong student and community involvement.

Locally constituted boards with policy formation power, and appointed or elected administrators are universal characteristics of short-cycle higher education.

At least 40 nations have short-cycle systems or single institutions. The movement first started in the United States in the early years of this century, has developed rapidly in the last two decades, often resulting from national efforts to reform post-secondary education. These changes have been undertaken primarily to offer a greater diversity of studies, to accommodate larger segments of the society, and to prepare for technological developments. The reforms represent either a restructuring or an extension of compulsory or secondary schools, expansion of higher education units, or most frequently, as new institutions. All three types are found in several countries.

Some short-cycle institutions are called universities, some are university branches, but in most national settings, they are structurally independent. Actual titles vary among the following: "technical institute," " regional or district college," "community college or junior college," or "college." Financial support also varies widely. Because of their local attachments, district or regional support is a common feature. In every sitatuion worldwide, student costs are less than in other public or private higheer institutions.

PART III

THE FUTURE OF THE HARAMBEE INSTITUTE MOVEMENT: INTERPRETATIONS AND SUGGESTIONS

The following interpretations and suggestions concerning the future of the harambee institute movement are submitted under full recognition of the limitations of this study. While the research effort was intensive, it was hardly possible within the specified time frame to achieve a full understanding of the complex societies which the institutes serve, and the government representing the people of Kenya. Hence, the word "suggestions" is used in directing attention to the future possibilities and potentialities as viewed by the author after the investigation.

1. The 15 institutes (all visited at least once) appear in general to be achieving the several purposes listed in Part II, section 3, of this report. The goal to offer manpower training at the craft and technical levels - a combination of local and national training needs - appears to be consistently and systematically pursued. Flexibility continues to be a definite asset in this regard. While the institutes were designed to serve primarily secondary graduates pursuing advanced technical education (less than that provided by the university and polytechnics) the leadership, by and large has not hesitated to serve secondary leavers as well as primary leavers by increasing craft level courses. By providing options to some and "second chances" to others, the institutes are extending opportunities to many who otherwise would not be able to contribute fully to the society. While not necessarily a

prestigious role, it is a crucial responsibility assigned and generally accepted by short-cycle institutions throughout the world.

The development of the institutes, particularly in the most remote areas, adds measurably to the modernization of the surrounding communities. Construction of roads, completion of telephone lines, and improvement of water supplies all contribute to better living conditions and faster communication. The very presence of an institute in a community means the availability of opportunities beyond the formal classroom and laboratory.

2. A purpose for education given in the Development Plan 1984-1988, "Enrichment of Heritage," offers an opportunity to the institute system. A common course or series of courses offered optionally or required of certain groups of students on Kenya culture could be a valuable long range service to the younger generation of Kenyans. This is presently being attempted at least to a limited extent in two institutes, Rift Valley and Kiambu.

A similar opportunity was recognized by Sri Lankan educators, where some years ago a system of six Junior University Colleges was developed. While job preparation was the primary purpose, "elevation and humanization of the individual" was another important goal. All students were required to take a cultural course. Topics varied from college to college including history of the society, anthropological characteristics, and art forms. Social work and various community activities were organized as part of the course work (see Kintzer, 1970). Students seeking the Associate in Arts or Sciences degree - a 2-year degree in American community colleges - must take several courses in liberal arts subjects to qualify and to move on to a higher point in a university or senior college. To prepare for a productive life in the complex world society is the major justification. This direction should be given serious consideration for the Kenya institutes within budgetary limitations that at the moment are severe.

President Moi recently made reference to the emerging need for broadly trained technicians, during a visit to Kisii High School. He was quoted as saying:

> Kenya,like other African nations, [needs] all-rounders, not engineers who [cannot] even repair a pipe (The Daily Nation, Dec. 8, 1986, p. 24).

He was urging a better balance in training programs, more breadth and less specialization. Workers are desperately needed who can transfer specific knowledge to adapt to rapid change.

3. Up-grading the institute system to polytechnic status was frequently brought up during conversations with educators. The desire to offer advanced education versus craft training is quite understandable. As mentioned earlier, the search for identity - to climb to the next higher institutional level - is a commonly held ambition among short-cycle educators the world over. While opportunities to offer advanced technical education may occur in a few urban locations, the overwhelming

obligations in terms of numbers needed remains in craft training for self-employment and small industry. Technical training with strong work-study components is the great need in Kenya.

University emulation on the part of short-cycle colleges has actually proved detrimental in other societies. In the United States where some have gone that route to improve identity, the colleges have simply become poor, inadequate universities, neglecting the vast majority of students not prepared for or not wanting a university education. Those which have continued to develop as originally intended have invariably prospered. Balancing the distribution of responsibilities for educational services is a crucial problem for a developing nation.

4. Implementation of the 8-4-4 plan to which the Ministry of Education is now committed affords opportunities, if not obligations, for the institutes of technology. Interchange of students among and between the various levels of the educational system and the integration of curriculums, especially the basic communication skill subjects, are closely tied to the plan's philosophy - to enable students to move smoothly throughout the system with minimal unit or credit losses and ultimately to allow students to change career objectives without having to start at the bottom to do so.

These admirable goals are very complex, requiring maximum communication and understanding throughout the entire system. What should be taught at each level in basic subjects is one of the beginning determinations if directive policy is to have operational meaning. A series of exploratory conferences called by the Ministry of education involving the entire system is suggested preparatory to attempting to implement policies for exchanging students and credits. Purposes of the conference should be to initiate interinstitutional communication and to develop common understandings on specific matters such as subject integration - the theoretical and the practical - curriculum articulation, and student flow. (For further information, see Kintzer, 1973 and 1976, and Kintzer and Wattenbarger, 1985). In such a complex endeavor having personal and professional status implications, individuals operating a new educational structure as well as those planning it must understand the ramifications of the heralded change.

Although the 8-4-4 plan has already been inaugurated in the primary portion, relationships among the three sectors have apparently not been specifically defined. Table H gives the general relationship with respect to technical education and training programs. A more detailed structure is presented in Table I, but the institute system is not identified in either of these. The encircled area in Table I appears to be the general level where the institutes are likely to be located. As indicated, the 7 primary years, the secondary 4 years to the KCE, 2 more years to the KACE, and 3 more for many of the university degrees, have been replaced with 8 primary, 4 secondary, and 4 higher education. While detailed plans have not been publicized, the primary years are likely to emphasize basic education including citizenship studies and preparation for better

TABLE H

TECHNICAL EDUCATION AND TRAINING PROGRAMMES IN 8-4-4 SYSTEM

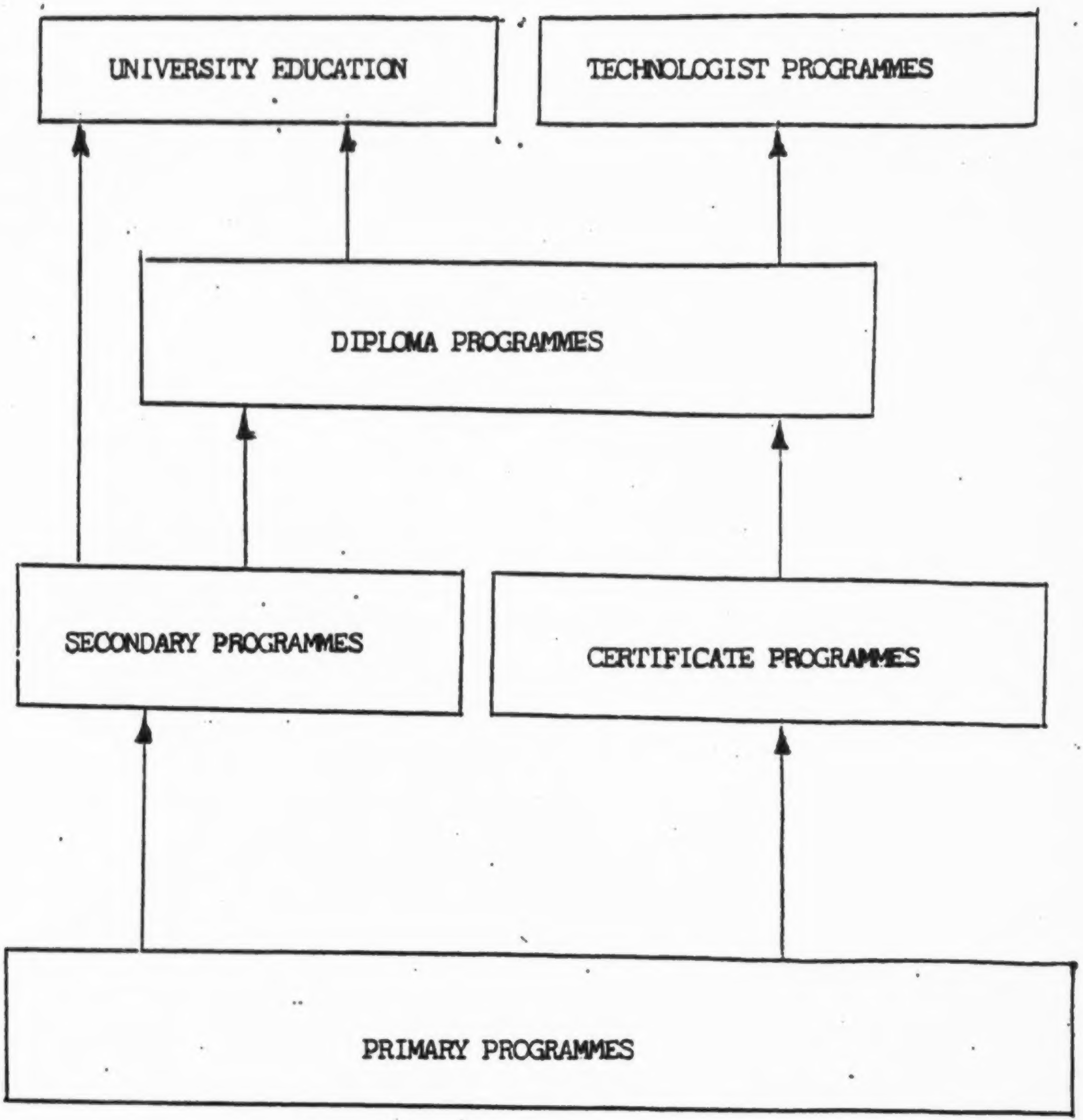
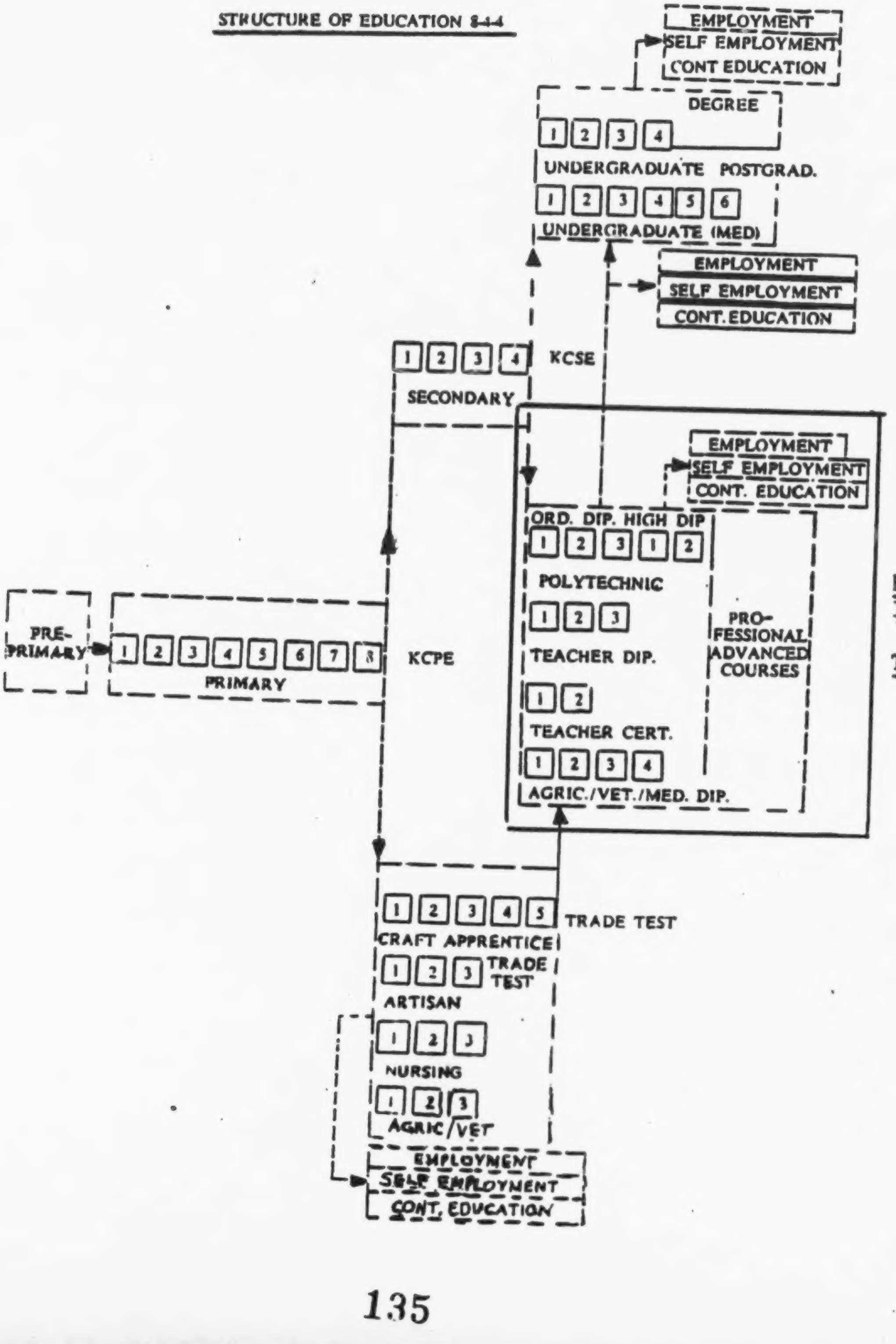

UNIVERSITY EDUCATION
TECHNOLOGIST PROGRAMMES
DIPLOMA PROGRAMMES
SECONDARY PROGRAMMES
CERTIFICATE PROGRAMMES
PRIMARY PROGRAMMES

TABLE I

STRUCTURE OF EDUCATION 8-4-4


EMPLOYMENT
SELF EMPLOYMENT
CONT EDUCATION
DEGREE
1 2 3 4
UNDERGRADUATE POSTGRAD.
1 2 3 4 5 6
UNDERGRADUATE (MED)
EMPLOYMENT
SELF EMPLOYMENT
CONT. EDUCATION
1 2 3 4
KCSE
SECONDARY
EMPLOYMENT
SELF EMPLOYMENT
CONT. EDUCATION
ORD. DIP. HIGH DIP
1 2 3 1 2
POLYTECHNIC
1 2 3
TEACHER DIP.
1 2
TEACHER CERT.
1 2 3 4
AGRIC./VET./MED. DIP.
PRO-FESSIONAL ADVANCED COURSES
PRE-PRIMARY
1 2 3 4 5 6 7 8
PRIMARY
KCPE
1 2 3 4 5
TRADE TEST
CRAFT APPRENTICE
1 2 3
TRADE TEST
ARTISAN
1 2 3
NURSING
1 2 3
AGRIC/VET
EMPLOYMENT
SELF EMPLOYMENT
CONT. EDUCATION

Harambee
Institutes
of
Technology

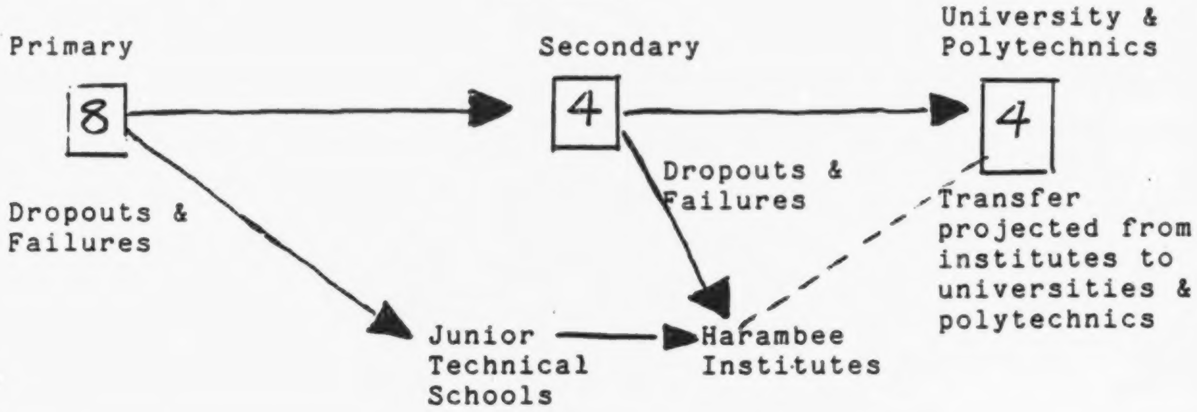
living.

As classes began in January 1987, the 8-4-4 system had, in fact, reached the former Form II. Some of the features of the new 13-subject required curriculum include sciences (a consolidation of Physical and Biological Sciences) Social Education and Ethics (morality and social responsibility) and Physical Education, Kiswahali, Business Education, and Religious Education are also required of 8-4-4 students. Nine classes per day are also mandatory. The new emphasis on science requires upgrading of laboratories in many schools.

Courses in "Enrichment of Heritage" suggested for the institutes of technology (item 2, this section) could supplement the introduction to "Social Education and Ethics" that is now a secondary school requirement

The following drawing is offered as a reasonably accurate student flow chart under a fully operational 8-4-4 plan:

TABLE J


University &
Polytechnics
Primary
Secondary
8
4
4
Dropouts &
Failures
Dropouts &
Failures
Transfer
projected from
institutes to
universities &
polytechnics
Junior
Technical
Schools
Harambee
Institutes

The institutes would continue to receive secondary completers and provide chances or options for secondary failures. Presumably, institutes would admit some completers of junior technical schools or village polytechnics, and also send better graduates to the polytechnics and universities without examinations, eventually with advanced standing credit. This, as suggested, would be some distance in the future.

5. The Central Government is currently considering thie vaildity of centralizing the governance of technical education under a single ministry. As outlined in a previous discussion, this complex area of education is scattered under four ministries or divisions of government the MOE, MOL, MOCSS, and the NYS. While each of these units operates under national policy, each has its own modus operandi, i.e., structure of institutions and training programs, administration, and budgetary allocations. While valid reasons have prompted the Government to disperse the governance and administration of technical education, strong arguments for unifying the authority under one unit are also apparent. Curtailment of overlapping institutions, consolidation of budgets, and tightening of the bureauracy are three potential gains of a unified system.

The diversion of effort is especially noticeable in the concentration on education for self-employment. The polytechnics, Harambee Institutes, youth polytechnics, KITI, and others all have programs operating through the various governmental agencies, national and provincial. A centralized organizational sponsorship could in time present a more unified approach. A centralized effort could further strengthen R & D activities in critical areas, such as manpower needs and information surveys on occupational trends.

6. Wherever short-cycle colleges are found, financing is the primary problem - the major concern of those responsible. Since short-cycle instituions are local and often rural, they encourage ever-greater numbers of people searching for education, thereby broadening the base of services and multiplying costs. Governments simply cannot afford free universal education. even through primary years, but that and more is the dream of the citizenry.

The Institutes of Technology involved early in the harambee movement of the late 1960s and early 1970s have developed more rapidly and extensively than those recently created. Contributions from citizens - from individuals and small businesses - appear to have reached the saturation point. Most institutions continue to have financial concerns. Two in particular, as described in the individual profiles, were almost abandoned a few years ago. WECO and Coast were kept from closing through emergency measures: the former resulting from a harambee drive organized by the Western Provincial Commissioner and the latter through a similar activty headed by the Coast Provincial Commissioner. Several others were long delayed in opening because of meagre support and persistent inflation.

The Government's contribution - about 40% of the average institute operating budget - is judged to be as generous as the national GNP allows. International investors, always unpredictable, are at present comparatively few. Student fees cannot be realistically increased. What is left appears to be in the potential of institute production units - the fertility of the land and the commercial value of products produced in the workshops.

The following observations are related to these two opportunities for the institutes to supplement budgets or to reach expenses. Examples offered in no way suggest that the schools identified are superior to those not named. The quality of short-cycle colleges can only be realistically measured against the local need. Although the system has national obligations, responsibility to the home district that provides the major support is the primary quality measure. Examples given are therefore illustrative only.

Land Potential

With the exception of Coast, Gusii, and possibly Kirinyaga and Murang'a, the other institutes have adequate acreage available for campus development and crop production. At least three older schools, notably Rift Valley, Kimathi, and WECO, appear to have under cultivation significant acreage. The Rift Valley farmland has made the college hostels self-sufficient. Kimathi has about 900 acres of coffee, and WECO has over 50 acreas under maize, coffee, and horticultural production.

Among the newer and developing institutes, Moi with over 4000 acreas of largely undeveloped land, and UKAI with nearly 15,000 acres of land on two sites available for diversified use, have the greatest land potential. The new Meru campus of 630 acres and a similar underdeveloped acreage at Sangalo show strong potential for income producing enterprises.

Workshop Production Units

Virtually all institutes have developed or are developing production units of varying types as end products of workshops in both craft and technical fields. The idea first took hold at Kimathi Institute about 10 years ago. Since references are made to these manufacturing and marketing schemes in the institutional profiles, descriptions of these innovative practices will not be repeated. Particular attention is briefly drawn to the several income generating units that have become the financial backbone of Kiambu Institute of Science and Technology: the coffee farm, the carpentry fully commercial production unit, the registered construction firm, and the developing A.T. manufacturing units, i.e., solar heaters, hydraulic pumps. Mention should also be made, among other enterprises, of the successful water pump production at WECO in Kakamega, the Kenya version of the well-known India MKII hand pump. The workshop originally sponsored by the CIDA (Canadian) organization in 1980, has an annual manufacturing capacity of several hundred pumps. The profit realized is very important for the institute which like many operates on a tight budget.

A note of caution should be repeated regarding the profit making schemes both through farming and manufacturing. Educational benefit must remain the primary reason for offering workshop craft and technical training. The training of students is an institute's most important obligation.

7. Research leading to evaluation appears to be lacking on institute campuses especially the type of investigation known as institutional research designed to understand and improve the schools, themselves. Where do students go after graduation or leaving? Answers are being sought in only a few situations. Following students - determining the success of the product - is as vital in education as the industrial world. Answers can

indeed affect every aspect of the enterprise. Greater attention appears to be given to the relevancy of course offerings to the appropriate industry. Most institutes attempt to remain in close touch with employers. Several examples of joint planning committee action were shared during institute visits.

The curriculum of the individual colleges needs to be constantly reviewed. Are courses offered reliable and appropriate for employment? Are some areas over-supplied, are others neglected? Answers to both questions have been studied. In the first case, the 1984 DANIDA study cited in Part I Section II of this report indicates that only in the few highly developed institutes is a true practical emphasis possible (p. 19). Astute use of limited resources is all the more crucial throughout the system. The DANIDA team specifically recommended that the institutes must remain sensitive:

> . . . not only to effective demand for particular skills [and develop] appropriate courses, but also to community based needs which may be turned into relevant training courses (p. 20).

In response to the second question raised above, Namaswa reported in a recent M.Ed. thesis that an over supply of agricultural technicians resulted in 1983-84, and he recommended that individual institutions re-examine their curriculums to improve student placement after graduation. However, Namaswa suggests that the problem will be at least partially solved with the implementation of the 8-4-4 plan that will likely require more agriculture teachers. Some of the institutes should be able to supply beginning teachers for secondary schools.

The institute system is badly in need of a staff development program. While the individual colleges can help in this concern by arranging released time for study and curriculum development, the financial burden is probably the Central Government's. Although the author was unable to obtain the specific information, reference was made to an attempt to organize such a program at Ramogi Institute (RIAT). The Kenya Technical Teachers College opened a decade ago under the sponsorship of the Canadian International Development Agency (CIDA) is a major help in this regard, but as the institute system expands, teacher education including in-service up-dating is of urgent importance.

Kenyatta University, one of the three institutions recently named to university status, is primarily concerned with teacher education. It is hoped that it will give major attention to technical teacher training as it matures.

Of the many bibliographic sources on evaluation available in Nairobi libraries, two books with particular reference to short-cycle institutions are listed below. These are among the items donated by the author to Kenyatta University under the Fulbright Research grant:

1. Donald A. Dellow and Lawrence H. Poole (eds.). MICROCOMPUTER APPLICATIONS IN ADMINISTRATION AND INSTRUCTION. (esp. Chapters 7 and 10). nr. 47, Sept. 1984, New Directions for Community Colleges) San Francisco: Jossey-Bass.

2. Gundar A. Myran (ed.). STRATEGIC MANAGEMENT IN THE COMMUNITY COLLEGE. (esp. chapters 4,5,6). nr. 44, December 1983, New Directions for Community Colleges). San Francisco: Jossey-Bass.

There is also an urgent need for research of a broader scale - manpower requirements at the national level. A national survey was started in 1982, but budgetary limitations caused abandonment of the effort (DANIDA, op. cit., 1984, p. 38). Another commission was later appointed by the President, and just recently has presented findings to the Government. Nevertheless, studies are overdue in determining local and regional manpower requirements.

8. Counseling and advising - an important function in education, particularly for short-cycle institutions providing options and second opportunities, appears to be a general responsibility of administrators, faculty, and the staff to a certain extent. As one leader remarked: "All of us are counselors. We do not have professionals." That situation is not necessarily inadequate in small institutes that are not diverse and are largely boarding schools. In many situations almost a 1 to 1 faculty/staff and student relationship is possible. However, as the system grows, and the institutes become more comprehensive serving larger numbers of part-time and adult students, professionally trained counselors - those with graduate training in student development - will be required. Personal counseling and career advisement are likely to become more important, particularly as the 8-4-4 plan is gradually operationalized.

Among the materials donated by the author to the University, two references provide theoretical and operational information for planning a student development strategy for the next decade:

1. Jane E. Matson and William Deegan. "Revitalizing Student Services". (in Deegan and Tillery. RENEWING THE COMMUNITY COLLEGE. (1985). San Francisco: Jossey-Bass.

2. Alice S. Thurston and William A. Robbins (eds.). COUNSELING: A CRUCIAL FUNCTION FOR THE 1980s. (nr. 43, Sept. 1983. New Directions for Community Colleges) San Francisco: Jossey-Bass.

9. The 1984-88 Development Plan indicated that the present 14 institutes (at the time the document was produced) would likely be expanded to 20. According to Mr. Churu, Senior Education Officer, Ministry of Education, the 16th - Mathenge Institute of Technology, South of Njeri town - has just opened with a first class of about 16 in building trades. Three others are contemplated: Sasala (Taita), Siaya (Nyanza Province), and Baringo (north of Nakuru town). This should bring the total to 19, possibly during 1987. Population growth would quite obviously support the additional institutes in the Njeri and Nakuru areas. Rift Valley Institute in particular cannot handle the demand. As early as 1980, for example, there were 1500 applicants at WECO, but only 150 could be accommodated. In 1983, 1000 applied for San'galo and 70 were accepted. In 1984, 2000 applied at Kiambu for only 120 slots (Namahwa, op.cit. p.12). These, and other similar situations, obviously point to the need for additional institutes in certain provinces and districts as well as facility improvements in those most heavily sought after.

From an outsiders perspective, adequate local funding should be assured in advance, since the National Government is unable to guarantee more that 35 to 40 % of the operative budgets. Fortifying the financial base of the present colleges is being carefully considered.

10. A parable presented on page 1 of the Ramogi Institute of Advanced Technology (RIAT) brochure introduces a final observation on evaluation:

> Give a man a fish,
>   He will eat a meal,
> Teach him how to fish,
>   He will eat forever.

(An interpretation)

Funds are often sought and won from interational agencies, but the resulting product - a building, piece of equipment,a curriculum, teaching material - is not monitored or subjected to rigorous or continuous evaluation. It is tempting, after an arduous search for money for a much-needed project, to rejoice in a victory, and to continue on a nonstop basis to search for more. It is difficult to pause for an important step vital to the lasting success of the venture - a plan for evaluation. The tasks involved in monitoring and evaluating are time consuming, complex, and costly. Such a plan designed to start immediately under the direct supervision of trained personnel responsible to the Chief Executive is central to cost effective management. Consolidation of gain can be one of the important benefits.

These interpretations and suggestions are made by the author not as a consultant brought by the Kenya Government or sent by the United States Government, but simply as an individual who has for many years studied short-cycle higher education the world over. For the previous 10 years, the author has offered a graduate course at UCLA in this area. Students enrolled have developed important contributions to improve the understanding of short-cycle colleges in many nations.

It is hoped that the findings presented in this report will enrich the literature of this vital institution that is designed to offer educational services to meet the ever-increasing demand.

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Chapter I

"Education, Society and Development." D. Court & D. Ghai.

Chapter 11

"The Political Economy of Self-Help: Kenya's Harambee Institutes of Technology." E. Godfrey & G. Mutiso.

Chapter 15

"Towards a National System of Education in Kenya."
D. Ghai.

Chapter 10.

"Dilemmas of Development: The Village Polytechnic Movement as a Shadow System of Education in Kenya."
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(Materials received from the individual institutes are identified in Part II - Section 1: INDIVIDUAL HISTORIES AND PRESENT STATUS)

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